

**KNOTT'S**  
**FOUR-FIGURE**  
**MATHEMATICAL**  
**TABLES**

**REVISED AND EXTENDED**  
By **L. J. COMRIE, F. R. S.**

CURRICULUM

QA  
55  
K72  
1955

**W. & R. CHAMBERS, LTD.**  
**LONDON AND EDINBURGH**

CURR HIST

$\Delta$	1	2	3	4	5	6	7	8	9	$\Delta$	1	2	3	4	5	6	7	8	9
1	0	0	0	0	1	1	1	1	1	61	6	12	18	24	31	37	43	49	55
2	0	0	1	1	1	1	1	2	2	62	6	12	19	25	31	37	43	50	56
3	0	1	1	1	2	2	2	2	3	63	6	13	19	25	32	38	44	50	57
4	0	1	1	2	2	2	3	3	4	64	6	13	19	26	32	38	45	51	58
5	1	1	2	2	3	3	4	4	5	65	7	13	20	26	33	39	46	52	59
6	1	1	2	2	3	4	4	5	5	66	7	13	20	26	33	40	46	53	59
7	1	1	2	3	4	4	5	6	6	67	7	13	20	27	34	40	47	54	60
8	1	2	2	3	4	5	6	6	7	68	7	14	20	27	34	41	48	54	61
9	1	2	3	4	5	5	6	7	8	69	7	14	21	28	35	41	48	55	62
10	1	2	3	4	5	6	7	8	9	70	7	14	21	28	35	42	49	56	63
11	1	2	3	4	6	7	8	9	10	71	7	14	21	28	36	43	50	57	64
12	1	2	4	5	6	7	8	10	11	72	7	14	22	29	36	43	50	58	65
13	1	3	4	5	7	8	9	10	12	73	7	15	22	29	37	44	51	58	66
14	1	3	4	6	7	8	10	11	13	74	7	15	22	30	37	44	52	59	67
15	2	3	5	6	8	9	11	12	14	75	8	15	23	30	38	45	53	60	68
16	2	3	5	6	8	10	11	13	14	76	8	15	23	30	38	46	53	61	68
17	2	3	5	7	9	10	12	14	15	77	8	15	23	31	39	46	54	62	69
18	2	4	5	7	9	11	13	14	16	78	8	16	23	31	39	47	55	62	70
19	2	4	6	8	10	11	13	15	17	79	8	16	24	32	40	47	55	63	71
20	2	4	6	8	10	12	14	16	18	80	8	16	24	32	40	48	56	64	72
21	2	4	6	8	11	13	15	17	19	81	8	16	24	32	41	49	57	65	73
22	2	4	7	9	11	13	15	18	20	82	8	16	25	33	41	49	57	66	74
23	2	5	7	9	12	14	16	18	21	83	8	17	25	33	42	50	58	66	75
24	2	5	7	10	12	14	17	19	22	84	8	17	25	34	42	50	59	67	76
25	3	5	8	10	13	15	18	20	23	85	9	17	26	34	43	51	60	68	77
26	3	5	8	10	13	16	18	21	23	86	9	17	26	34	43	52	60	69	77
27	3	5	8	11	14	16	19	22	24	87	9	17	26	35	44	52	61	70	78
28	3	6	8	11	14	17	20	22	25	88	9	18	26	35	44	53	62	70	79
29	3	6	9	12	15	17	20	23	26	89	9	18	27	36	45	53	62	71	80
30	3	6	9	12	15	18	21	24	27	90	9	18	27	36	45	54	63	72	81
31	3	6	9	12	16	19	22	25	28	91	9	18	27	36	46	55	64	73	82
32	3	6	10	13	16	19	22	26	29	92	9	18	28	37	46	55	64	74	83
33	3	7	10	13	17	20	23	26	30	93	9	19	28	37	47	56	65	74	84
34	3	7	10	14	17	20	24	27	31	94	9	19	28	38	47	56	66	75	85
35	4	7	11	14	18	21	25	28	32	95	10	19	29	38	48	57	67	76	86
36	4	7	11	14	18	22	25	29	32	96	10	19	29	38	48	58	67	77	86
37	4	7	11	15	19	22	26	30	33	97	10	19	29	39	49	58	68	78	87
38	4	8	11	15	19	23	27	30	34	98	10	20	29	39	49	59	69	78	88
39	4	8	12	16	20	23	27	31	35	99	10	20	30	40	50	59	69	79	89
40	4	8	12	16	20	24	28	32	36	100	10	20	30	40	50	60	70	80	90
41	4	8	12	16	21	25	29	33	37	101	10	20	30	40	51	61	71	81	91
42	4	8	13	17	21	25	29	34	38	102	10	20	31	41	51	61	71	82	92
43	4	9	13	17	22	26	30	34	39	103	10	21	31	41	52	62	72	82	93
44	4	9	13	18	22	26	31	35	40	104	10	21	31	42	52	62	73	83	94
45	5	9	14	18	23	27	32	36	41	105	11	21	32	42	53	63	74	84	95
46	5	9	14	18	23	28	32	37	41	106	11	21	32	42	53	64	74	85	95
47	5	9	14	19	24	28	33	38	42	107	11	21	32	43	54	64	75	86	96
48	5	10	14	19	24	29	34	38	43	108	11	22	32	43	54	65	76	86	97
49	5	10	15	20	25	29	34	39	44	109	11	22	33	44	55	65	76	87	98
50	5	10	15	20	25	30	35	40	45	110	11	22	33	44	55	66	77	88	99
51	5	10	15	20	26	31	36	41	46	111	11	22	33	44	56	67	78	89	100
52	5	10	16	21	26	31	36	42	47	112	11	22	34	45	56	67	78	90	101
53	5	11	16	21	27	32	37	42	48	113	11	23	34	45	57	68	79	90	102
54	5	11	16	22	27	32	38	43	49	114	11	23	34	46	57	68	80	91	103
55	6	11	17	22	28	33	39	44	50	115	12	23	35	46	58	69	81	92	104
56	6	11	17	22	28	34	39	45	50	116	12	23	35	46	58	70	81	93	104
57	6	11	17	23	29	34	40	46	51	117	12	23	35	47	59	70	82	94	105
58	6	12	17	23	29	35	41	46	52	118	12	24	35	47	59	71	83	94	106
59	6	12	18	24	30	35	41	47	53	119	12	24	36	48	60	71	83	95	107
60	6	12	18	24	30	36	42	48	54	120	12	24	36	48	60	72	84	96	108

# KNOTT'S FOUR-FIGURE

# MATHEMATICAL

Department of Educational Foundations

The University of Alberta

Edmonton, Alberta

002496

T6G 2G5

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### NOTE ON INTERPOLATION

Interpolation is the process of determining values lying between those actually given in the tables. In this book (as in most others of its scope) this is generally accomplished by using the line of "mean differences"—more accurately mean proportional parts (P.P.s)—given on the same line as the function. Slightly higher accuracy is obtainable by using the proportional parts for the actual difference between two adjacent values. (For quick reference most of the relevant proportional parts are given opposite the difference values shown in the column headed  $\Delta$ ; a full list appears on the inside covers of the book.) In certain indicated portions of some of the tables the rigorous P.P. method is strongly recommended, as is the use of the various other aids provided to facilitate more accurate interpolation, viz., the expanded tables of Log Sin and Log Tan from  $0^{\circ}$ - $8^{\circ}$ , of Nat. Tan and Nat. Sec from  $82^{\circ}$ - $90^{\circ}$ ; the  $S$ ,  $T$ ,  $\tau$ , and  $\sigma$  functions; and the "critical tables" of Sines, Cosines, Secants and Cosecants for certain ranges of values.

Original Edition 1900

New Edition 1955

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x	0	1	2	3	4	5	6	7	8	9	Δ	ADD									
												1	2	3	4	5	6	7	8	9	
10	·0000	0043	0086	0128	0170	0212					42	4	8	13	17	21	25	29	34	38	
						0212	0253	0294	0334	0374	40	4	8	12	16	20	24	28	32	36	
11	·0414	0453	0492	0531	0569	0607					39	4	8	11	16	19	23	27	31	35	
						0607	0645	0682	0719	0755	37	4	7	11	15	18	22	26	30	33	
12	·0792	0828	0864	0899	0934	0969					35	4	7	11	14	18	21	25	28	32	
						0969	1004	1038	1072	1106	34	3	7	10	14	17	20	24	27	31	
13	·1139	1173	1206	1239	1271	1303					33	3	7	10	13	16	20	23	26	30	
						1303	1335	1367	1399	1430	32	3	6	10	13	16	19	22	26	29	
14	·1461	1492	1523	1553	1584	1614	1644	1673	1703	1732	30	3	6	9	12	15	18	21	24	27	
15	·1761	1790	1818	1847	1875	1903	1931	1959	1987	2014	28	3	6	8	11	14	17	20	22	25	
16	·2041	2068	2095	2122	2148	2175	2201	2227	2253	2279	26	3	5	8	10	13	16	18	21	23	
17	·2304	2330	2355	2380	2405	2430	2455	2480	2504	2529	25	2	5	7	10	12	15	17	20	22	
18	·2553	2577	2601	2625	2648	2672	2695	2718	2742	2765	23	2	5	7	9	12	14	16	19	21	
19	·2788	2810	2833	2856	2878	2900	2923	2945	2967	2989	22	2	4	7	9	11	13	15	18	20	
20	·3010	3032	3054	3075	3096	3118	3139	3160	3181	3201	21	2	4	6	8	11	13	15	17	19	
21	·3222	3243	3263	3284	3304	3324	3345	3365	3385	3404	20	2	4	6	8	10	12	14	16	18	
22	·3424	3444	3464	3483	3502	3522	3541	3560	3579	3598	19	2	4	6	8	10	11	13	15	17	
23	·3617	3636	3655	3674	3692	3711	3729	3747	3766	3784	18	2	4	6	7	9	11	13	15	17	
24	·3802	3820	3838	3856	3874	3892	3909	3927	3945	3962	18	2	4	5	7	9	11	13	14	16	
25	·3979	3997	4014	4031	4048	4065	4082	4099	4116	4133	17	2	3	5	7	9	10	12	14	15	
26	·4150	4166	4183	4200	4216	4232	4249	4265	4281	4298	16	2	3	5	6	8	10	11	13	14	
27	·4314	4330	4346	4362	4378	4393	4409	4425	4440	4456	16	2	3	5	6	8	9	11	13	14	
28	·4472	4487	4502	4518	4533	4548	4564	4579	4594	4609	15	2	3	5	6	8	9	11	12	14	
29	·4624	4639	4654	4669	4683	4698	4713	4728	4742	4757	1	3	4	6	7	9	10	12	13		
30	·4771	4786	4800	4814	4829	4843	4857	4871	4886	4900	14	1	3	4	6	7	8	10	11	13	
31	·4914	4928	4942	4955	4969	4983	4997	5011	5024	5038	1	3	4	5	7	8		10	11	12	
32	·5051	5065	5079	5092	5105	5119	5132	5145	5159	5172	1	3	4	5	7	8		9	11	12	
33	·5185	5198	5211	5224	5237	5250	5263	5276	5289	5302	13	1	3	4	5	7	8		9	10	12
34	·5315	5328	5340	5353	5366	5378	5391	5403	5416	5428	1	3	4	5	6	8		9	10	11	
35	·5441	5453	5465	5478	5490	5502	5514	5527	5539	5551	1	2	4	5	6	7		8	10	11	
36	·5563	5575	5587	5599	5611	5623	5635	5647	5658	5670	12	1	2	4	5	6	7		8	10	11
37	·5682	5694	5705	5717	5729	5740	5752	5763	5775	5786	1	2	3	5	6	7		8	9	10	
38	·5798	5809	5821	5832	5843	5855	5866	5877	5888	5899	1	2	3	5	6	7		8	9	10	
39	·5911	5922	5933	5944	5955	5966	5977	5988	5999	6010	11	1	2	3	4	6	7		8	9	10
40	·6021	6031	6042	6053	6064	6075	6085	6096	6107	6117	1	2	3	4	5	6		7	9	10	
41	·6128	6138	6149	6160	6170	6180	6191	6201	6212	6222	1	2	3	4	5	6		7	8	9	
42	·6232	6243	6253	6263	6274	6284	6294	6304	6314	6325	1	2	3	4	5	6		7	8	9	
43	·6335	6345	6355	6365	6375	6385	6395	6405	6415	6425	10	1	2	3	4	5	6		7	8	9
44	·6435	6444	6454	6464	6474	6484	6493	6503	6513	6522	1	2	3	4	5	6		7	8	9	
45	·6532	6542	6551	6561	6571	6580	6590	6599	6609	6618	1	2	3	4	5	6		7	8	9	
46	·6628	6637	6646	6656	6665	6675	6684	6693	6702	6712	1	2	3	4	5	6		7	7	8	
47	·6721	6730	6739	6749	6758	6767	6776	6785	6794	6803	1	2	3	4	5	5		6	7	8	
48	·6812	6821	6830	6839	6848	6857	6866	6875	6884	6893	9	1	2	3	4	5	5		6	7	8
49	·6902	6911	6920	6928	6937	6946	6955	6964	6972	6981	1	2	3	4	4	5		6	7	8	

### USEFUL CONSTANTS WITH THEIR LOGARITHMS

	No.	Log.		No.	Log.		No.	Log.
$\pi$	3·14159	0·4971	1 radian	57°·296	1·7581	e	2·71828	0·4343
$\frac{1}{\pi}$	0·3183	$\bar{1}$ ·5029		3437'·7	3·5363	M	0·4343	$\bar{1}$ ·6378
$\frac{1}{\pi}$	0·3183	$\bar{1}$ ·5029		206265"	5·3144	$\frac{1}{M}$	2·3026	0·3622
$\pi^2$	9·8696	0·9943	arc 1°	0·017 453 293	$\bar{2}$ ·2419	<hr/>		
$\sqrt{\pi}$	1·7725	0·2486	arc 1'	0·000 290 888	$\bar{4}$ ·4637	$\log_e x = \frac{1}{M} \cdot \log_{10} x$		
$\frac{4}{3}\pi$	4·1888	0·6221	arc 1"	0·000 004 848	$\bar{6}$ ·6856	$\log_{10} x = M \cdot \log_e x$		

X	0	1	2	3	4	5	6	7	8	9	Δ	ADD								
												1	2	3	4	5	6	7	8	9
50	-6990	6998	7007	7016	7024	7033	7042	7050	7059	7067	8	1	2	3	3	4	5	6	7	8
51	-7076	7084	7093	7101	7110	7118	7126	7135	7143	7152		1	2	3	3	4	5	6	7	8
52	-7160	7168	7177	7185	7193	7202	7210	7218	7226	7235		1	2	3	3	4	5	6	7	7
53	-7243	7251	7259	7267	7275	7284	7292	7300	7308	7316		1	2	2	3	4	5	6	6	7
54	-7324	7332	7340	7348	7356	7364	7372	7380	7388	7396		1	2	2	3	4	5	6	6	7
55	-7404	7412	7419	7427	7435	7443	7451	7459	7466	7474	7	1	2	2	3	4	5	5	6	7
56	-7482	7490	7497	7505	7513	7520	7528	7536	7543	7551		1	2	2	3	4	5	5	6	7
57	-7559	7566	7574	7582	7589	7597	7604	7612	7619	7627		1	2	2	3	4	5	5	6	7
58	-7634	7642	7649	7657	7664	7672	7679	7686	7694	7701		1	2	2	3	4	4	5	6	7
59	-7709	7716	7723	7731	7738	7745	7752	7760	7767	7774		1	1	2	3	4	4	5	6	7
60	-7782	7789	7796	7803	7810	7818	7825	7832	7839	7846	6	1	1	2	3	4	4	5	6	6
61	-7853	7860	7868	7875	7882	7889	7896	7903	7910	7917		1	1	2	3	4	4	5	6	6
62	-7924	7931	7938	7945	7952	7959	7966	7973	7980	7987		1	1	2	3	3	4	5	6	6
63	-7993	8000	8007	8014	8021	8028	8035	8041	8048	8055		1	1	2	3	3	4	5	6	6
64	-8062	8069	8075	8082	8089	8096	8102	8109	8116	8122		1	1	2	3	3	4	5	5	6
65	-8129	8136	8142	8149	8156	8162	8169	8176	8182	8189	5	1	1	2	3	3	4	5	5	6
66	-8195	8202	8209	8215	8222	8228	8235	8241	8248	8254		1	1	2	3	3	4	5	5	6
67	-8261	8267	8274	8280	8287	8293	8299	8306	8312	8319		1	1	2	3	3	4	4	5	6
68	-8325	8331	8338	8344	8351	8357	8363	8370	8376	8382		1	1	2	3	3	4	4	5	6
69	-8388	8395	8401	8407	8414	8420	8426	8432	8439	8445		1	1	2	3	3	4	4	5	6
70	-8451	8457	8463	8470	8476	8482	8488	8494	8500	8506	4	1	1	2	2	3	4	4	5	6
71	-8513	8519	8525	8531	8537	8543	8549	8555	8561	8567		1	1	2	2	3	4	4	5	5
72	-8573	8579	8585	8591	8597	8603	8609	8615	8621	8627		1	1	2	2	3	4	4	5	5
73	-8633	8639	8645	8651	8657	8663	8669	8675	8681	8686		1	1	2	2	3	4	4	5	5
74	-8692	8698	8704	8710	8716	8722	8727	8733	8739	8745		1	1	2	2	3	4	4	5	5
75	-8751	8756	8762	8768	8774	8779	8785	8791	8797	8802	3	1	1	2	2	3	3	4	5	5
76	-8808	8814	8820	8825	8831	8837	8842	8848	8854	8859		1	1	2	2	3	3	4	5	5
77	-8865	8871	8876	8882	8887	8893	8899	8904	8910	8915		1	1	2	2	3	3	4	4	5
78	-8921	8927	8932	8938	8943	8949	8954	8960	8965	8971		1	1	2	2	3	3	4	4	5
79	-8976	8982	8987	8993	8998	9004	9009	9015	9020	9025		1	1	2	2	3	3	4	4	5
80	-9031	9036	9042	9047	9053	9058	9063	9069	9074	9079	2	1	1	2	2	3	3	4	4	5
81	-9085	9090	9096	9101	9106	9112	9117	9122	9128	9133		1	1	2	2	3	3	4	4	5
82	-9138	9143	9149	9154	9159	9165	9170	9175	9180	9186		1	1	2	2	3	3	4	4	5
83	-9191	9196	9201	9206	9212	9217	9222	9227	9232	9238		1	1	2	2	3	3	4	4	5
84	-9243	9248	9253	9258	9263	9269	9274	9279	9284	9289		1	1	2	2	3	3	4	4	5
85	-9294	9299	9304	9309	9315	9320	9325	9330	9335	9340	1	1	1	2	2	3	3	4	4	5
86	-9345	9350	9355	9360	9365	9370	9375	9380	9385	9390		1	1	2	2	3	3	4	4	5
87	-9395	9400	9405	9410	9415	9420	9425	9430	9435	9440		0	1	1	2	2	3	3	4	4
88	-9445	9450	9455	9460	9465	9469	9474	9479	9484	9489		0	1	1	2	2	3	3	4	4
89	-9494	9499	9504	9509	9513	9518	9523	9528	9533	9538		0	1	1	2	2	3	3	4	4
90	-9542	9547	9552	9557	9562	9566	9571	9576	9581	9586	0	0	1	1	2	2	3	3	4	4
91	-9590	9595	9600	9605	9609	9614	9619	9624	9628	9633		0	1	1	2	2	3	3	4	4
92	-9638	9643	9647	9652	9657	9661	9666	9671	9675	9680		0	1	1	2	2	3	3	4	4
93	-9685	9689	9694	9699	9703	9708	9713	9717	9722	9727		0	1	1	2	2	3	3	4	4
94	-9731	9736	9741	9745	9750	9754	9759	9763	9768	9773		0	1	1	2	2	3	3	4	4
95	-9777	9782	9786	9791	9795	9800	9805	9809	9814	9818	4	0	1	1	2	2	3	3	4	4
96	-9823	9827	9832	9836	9841	9845	9850	9854	9859	9863		0	1	1	2	2	3	3	4	4
97	-9868	9872	9877	9881	9886	9890	9894	9899	9903	9908		0	1	1	2	2	3	3	4	4
98	-9912	9917	9921	9926	9930	9934	9939	9943	9948	9952		0	1	1	2	2	3	3	4	4
99	-9956	9961	9965	9969	9974	9978	9983	9987	9991	9996		0	1	1	2	2	2	3	3	4

Only the decimal portion (*mantissa*) of each logarithm is shown in this table.  
The integral portion (*characteristic*) must be determined independently.



x	0	1	2	3	4	5	6	7	8	9	Δ	ADD								
												1	2	3	4	5	6	7	8	9
·00	1000	1002	1005	1007	1009	1012	1014	1016	1019	1021	2	0	0	1	1	1	1	1	2	2
·01	1023	1026	1028	1030	1033	1035	1038	1040	1042	1045		0	0	1	1	1	1	1	2	2
·02	1047	1050	1052	1054	1057	1059	1062	1064	1067	1069		0	0	1	1	1	1	1	2	2
·03	1072	1074	1076	1079	1081	1084	1086	1089	1091	1094		0	0	1	1	1	1	1	2	2
·04	1096	1099	1102	1104	1107	1109	1112	1114	1117	1119		0	1	1	1	1	2	2	2	2
·05	1122	1125	1127	1130	1132	1135	1138	1140	1143	1146	3	0	1	1	1	1	2	2	2	2
·06	1148	1151	1153	1156	1159	1161	1164	1167	1169	1172		0	1	1	1	1	2	2	2	2
·07	1175	1178	1180	1183	1186	1189	1191	1194	1197	1199		0	1	1	1	1	2	2	2	2
·08	1202	1205	1208	1211	1213	1216	1219	1222	1225	1227		0	1	1	1	1	2	2	2	3
·09	1230	1233	1236	1239	1242	1245	1247	1250	1253	1256		0	1	1	1	1	2	2	2	3
·10	1259	1262	1265	1268	1271	1274	1276	1279	1282	1285	4	0	1	1	1	1	2	2	2	3
·11	1288	1291	1294	1297	1300	1303	1306	1309	1312	1315		0	1	1	1	1	2	2	2	3
·12	1318	1321	1324	1327	1330	1334	1337	1340	1343	1346		0	1	1	1	1	2	2	2	3
·13	1349	1352	1355	1358	1361	1365	1368	1371	1374	1377		0	1	1	1	1	2	2	2	3
·14	1380	1384	1387	1390	1393	1396	1400	1403	1406	1409		0	1	1	1	1	2	2	2	3
·15	1413	1416	1419	1422	1426	1429	1432	1435	1439	1442	5	0	1	1	1	1	2	2	2	3
·16	1445	1449	1452	1455	1459	1462	1466	1469	1472	1476		0	1	1	1	1	2	2	2	3
·17	1479	1483	1486	1489	1493	1496	1500	1503	1507	1510		0	1	1	1	1	2	2	2	3
·18	1514	1517	1521	1524	1528	1531	1535	1538	1542	1545		0	1	1	1	1	2	2	2	3
·19	1549	1552	1556	1560	1563	1567	1570	1574	1578	1581		0	1	1	1	1	2	2	2	3
·20	1585	1589	1592	1596	1600	1603	1607	1611	1614	1618	6	0	1	1	1	1	2	2	2	3
·21	1622	1626	1629	1633	1637	1641	1644	1648	1652	1656		0	1	1	1	1	2	2	2	3
·22	1660	1663	1667	1671	1675	1679	1683	1687	1690	1694		0	1	1	1	1	2	2	2	3
·23	1698	1702	1706	1710	1714	1718	1722	1726	1730	1734		0	1	1	1	1	2	2	2	3
·24	1738	1742	1746	1750	1754	1758	1762	1766	1770	1774		0	1	1	1	1	2	2	2	3
·25	1778	1782	1786	1791	1795	1799	1803	1807	1811	1816	7	0	1	1	1	1	2	2	2	3
·26	1820	1824	1828	1832	1837	1841	1845	1849	1854	1858		0	1	1	1	1	2	2	2	3
·27	1862	1866	1871	1875	1879	1884	1888	1892	1897	1901		0	1	1	1	1	2	2	2	3
·28	1905	1910	1914	1919	1923	1928	1932	1936	1941	1945		0	1	1	1	1	2	2	2	3
·29	1950	1954	1959	1963	1968	1972	1977	1982	1986	1991		0	1	1	1	1	2	2	2	3
·30	1995	2000	2004	2009	2014	2018	2023	2028	2032	2037	8	0	1	1	1	1	2	2	2	3
·31	2042	2046	2051	2056	2061	2065	2070	2075	2080	2084		0	1	1	1	1	2	2	2	3
·32	2089	2094	2099	2104	2109	2113	2118	2123	2128	2133		0	1	1	1	1	2	2	2	3
·33	2138	2143	2148	2153	2158	2163	2168	2173	2178	2183		1	1	2	2	2	2	2	2	3
·34	2188	2193	2198	2203	2208	2213	2218	2223	2228	2234		1	1	2	2	2	2	2	2	3
·35	2239	2244	2249	2254	2259	2265	2270	2275	2280	2286	9	1	1	2	2	2	2	2	2	3
·36	2291	2296	2301	2307	2312	2317	2323	2328	2333	2339		1	1	2	2	2	2	2	2	3
·37	2344	2350	2355	2360	2366	2371	2377	2382	2388	2393		1	1	2	2	2	2	2	2	3
·38	2399	2404	2410	2415	2421	2427	2432	2438	2443	2449		1	1	2	2	2	2	2	2	3
·39	2455	2460	2466	2472	2477	2483	2489	2495	2500	2506		1	1	2	2	2	2	2	2	3
·40	2512	2518	2523	2529	2535	2541	2547	2553	2559	2564	6	1	1	2	2	2	2	2	2	3
·41	2570	2576	2582	2588	2594	2600	2606	2612	2618	2624		1	1	2	2	2	2	2	2	3
·42	2630	2636	2642	2649	2655	2661	2667	2673	2679	2685		1	1	2	2	2	2	2	2	3
·43	2692	2698	2704	2710	2716	2723	2729	2735	2742	2748		1	1	2	2	2	2	2	2	3
·44	2754	2761	2767	2773	2780	2786	2793	2799	2805	2812		1	1	2	2	2	2	2	2	3
·45	2818	2825	2831	2838	2844	2851	2858	2864	2871	2877	7	1	1	2	2	2	2	2	2	3
·46	2884	2891	2897	2904	2911	2917	2924	2931	2938	2944		1	1	2	2	2	2	2	2	3
·47	2951	2958	2965	2972	2979	2985	2992	2999	3006	3013		1	1	2	2	2	2	2	2	3
·48	3020	3027	3034	3041	3048	3055	3062	3069	3076	3083		1	1	2	2	2	2	2	2	3
·49	3090	3097	3105	3112	3119	3126	3133	3141	3148	3155		1	1	2	2	2	2	2	2	3

x	0	1	2	3	4	5	6	7	8	9	$\Delta$	ADD								
												1	2	3	4	5	6	7	8	9
-50	3162	3170	3177	3184	3192	3199	3206	3214	3221	3228		1	1	2	3	4	4	5	6	7
-51	3236	3243	3251	3258	3266	3273	3281	3289	3296	3304		1	2	2	3	4	5	5	6	7
-52	3311	3319	3327	3334	3342	3350	3357	3365	3373	3381		1	2	2	3	4	5	5	6	7
-53	3388	3396	3404	3412	3420	3428	3436	3443	3451	3459		1	2	2	3	4	5	6	6	7
-54	3467	3475	3483	3491	3499	3508	3516	3524	3532	3540	8	1	2	2	3	4	5	6	6	7
-55	3548	3556	3565	3573	3581	3589	3597	3606	3614	3622		1	2	2	3	4	5	6	7	7
-56	3631	3639	3648	3656	3664	3673	3681	3690	3698	3707		1	2	3	3	4	5	6	7	8
-57	3715	3724	3733	3741	3750	3758	3767	3776	3784	3793		1	2	3	3	4	5	6	7	8
-58	3802	3811	3819	3828	3837	3846	3855	3864	3873	3882		1	2	3	4	4	5	6	7	8
-59	3890	3899	3908	3917	3926	3936	3945	3954	3963	3972	9	1	2	3	4	5	5	6	7	8
-60	3981	3990	3999	4009	4018	4027	4036	4046	4055	4064		1	2	3	4	5	6	6	7	8
-61	4074	4083	4093	4102	4111	4121	4130	4140	4150	4159		1	2	3	4	5	6	7	8	9
-62	4169	4178	4188	4198	4207	4217	4227	4236	4246	4256		1	2	3	4	5	6	7	8	9
-63	4266	4276	4285	4295	4305	4315	4325	4335	4345	4355	10	1	2	3	4	5	6	7	8	9
-64	4365	4375	4385	4395	4406	4416	4426	4436	4446	4455		1	2	3	4	5	6	7	8	9
-65	4467	4477	4487	4498	4508	4519	4529	4539	4550	4560		1	2	3	4	5	6	7	8	9
-66	4571	4581	4592	4603	4613	4624	4634	4645	4656	4667		1	2	3	4	5	6	7	9	10
-67	4677	4688	4699	4710	4721	4732	4742	4753	4764	4775	11	1	2	3	4	6	7	8	9	10
-68	4786	4797	4808	4819	4831	4842	4853	4864	4875	4887		1	2	3	4	6	7	8	9	10
-69	4898	4909	4920	4932	4943	4955	4966	4977	4989	5000		1	2	3	5	6	7	8	9	10
-70	5012	5023	5035	5047	5058	5070	5082	5093	5105	5117		1	2	4	5	6	7	8	9	11
-71	5129	5140	5152	5164	5176	5188	5200	5212	5224	5236	12	1	2	4	5	6	7	8	10	11
-72	5248	5260	5272	5284	5297	5309	5321	5333	5346	5358		1	2	4	5	6	7	9	10	11
-73	5370	5383	5395	5408	5420	5433	5445	5458	5470	5483		1	3	4	5	6	8	9	10	11
-74	5495	5508	5521	5534	5546	5559	5572	5585	5598	5610		1	3	4	5	6	8	9	10	12
-75	5623	5636	5649	5662	5675	5689	5702	5715	5728	5741	13	1	3	4	5	7	8	9	10	12
-76	5754	5768	5781	5794	5808	5821	5834	5848	5861	5875		1	3	4	5	7	8	9	11	12
-77	5888	5902	5916	5929	5943	5957	5970	5984	5998	6012		1	3	4	5	7	8	10	11	12
-78	6026	6039	6053	6067	6081	6095	6109	6124	6138	6152	14	1	3	4	6	7	8	10	11	13
-79	6166	6180	6194	6209	6223	6237	6252	6266	6281	6295		1	3	4	6	7	9	10	11	13
-80	6310	6324	6339	6353	6368	6383	6397	6412	6427	6442		1	3	4	6	7	9	10	12	13
-81	6457	6471	6486	6501	6516	6531	6546	6561	6577	6592	15	2	3	5	6	8	9	11	12	14
-82	6607	6622	6637	6653	6668	6683	6699	6714	6730	6745		2	3	5	6	8	9	11	12	14
-83	6761	6776	6792	6808	6823	6839	6855	6871	6887	6902		2	3	5	6	8	9	11	13	14
-84	6918	6934	6950	6966	6982	6998	7015	7031	7047	7063	16	2	3	5	6	8	10	11	13	14
-85	7079	7096	7112	7129	7145	7161	7178	7194	7211	7228		2	3	5	7	8	10	12	13	15
-86	7244	7261	7278	7295	7311	7328	7345	7362	7379	7396	17	2	3	5	7	9	10	12	14	15
-87	7413	7430	7447	7464	7482	7499	7516	7534	7551	7568		2	3	5	7	9	10	12	14	16
-88	7586	7603	7621	7638	7656	7674	7691	7709	7727	7745		2	4	5	7	9	11	12	14	16
-89	7762	7780	7798	7816	7834	7852	7870	7889	7907	7925	18	2	4	5	7	9	11	13	14	16
-90	7943	7962	7980	7998	8017	8035	8054	8072	8091	8110		2	4	6	7	9	11	13	15	17
-91	8128	8147	8166	8185	8204	8222	8241	8260	8279	8299	19	2	4	6	8	10	11	13	15	17
-92	8318	8337	8356	8375	8395	8414	8433	8453	8472	8492		2	4	6	8	10	12	14	15	17
-93	8511	8531	8551	8570	8590	8610	8630	8650	8670	8690		2	4	6	8	10	12	14	16	18
-94	8710	8730	8750	8770	8790	8810	8831	8851	8872	8892	20	2	4	6	8	10	12	14	16	18
-95	8913	8933	8954	8974	8995	9016	9036	9057	9078	9099		2	4	6	8	10	12	15	17	19
-96	9120	9141	9162	9183	9204	9226	9247	9268	9290	9311	21	2	4	6	8	11	13	15	17	19
-97	9333	9354	9376	9397	9419	9441	9462	9484	9506	9528		2	4	7	9	11	13	15	17	20
-98	9550	9572	9594	9616	9638	9661	9683	9705	9727	9750	22	2	4	7	9	11	13	15	18	20
-99	9772	9795	9817	9840	9863	9886	9908	9931	9954	9977	23	2	5	7	9	11	14	16	18	21

x	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	$\Delta$	ADD				
	0°·0	0°·1	0°·2	0°·3	0°·4	0°·5	0°·6	0°·7	0°·8	0°·9		1'	2'	3'	4'	5'
0°	—∞	3·242	3·543	3·719	3·844	3·941	2·020	2·087	2·145	2·196		Differences here vary too rapidly for interpolation by P.P.s. See Table on page 10.				
1	2·2419	2832	3210	3558	3880	4179	4459	4723	4971	5206						
2	·5428	5640	5842	6035	6220	6397	6567	6731	6889	7041						
3	·7188	7330	7468	7602	7731	7857	7979	8098	8213	8326						
4	·8436	8543	8647	8749	8849	8946	9042	9135	9226	9315		52 9 17 26 35 43 49 8 16 25 33 41 47 8 16 23 31 39 44 7 15 22 29 37				
5	2·9403	9489	9573	9655	9736	9816	9894	2·9970	1·0046	1·0120						
6	1·0192	0264	0334	0403	0472	0539	0605	0670	0734	0797						
7	·0859	0920	0981	1040	1099	1157	1214	1271	1326	1381						
8	·1436	1489	1542	1594	1646	1697	1747	1797	1847	1895	52	9	17	26	35	43
9	·1943	1991	2038	2085	2131	2176	2221	2266	2310	2353	49	8	16	25	33	41
						2176	2221				47	8	16	23	31	39
											44	7	15	22	29	37
10	1·2397	2439	2482	2524	2565	2606	2647	2687	2727	2767	42	7	14	21	28	35
						2606	2647				40	7	13	20	27	33
11	·2806	2845	2883	2921	2959	2997	3034	3070	3107	3143	38	6	13	19	25	32
						2997	3034				36	6	12	18	24	30
12	·3179	3214	3250	3284	3319	3353	3387	3421	3455	3488	35	6	12	17	23	29
						3353	3387				34	6	11	17	23	28
13	·3521	3554	3586	3618	3650	3682	3713	3745	3775	3806	32	5	11	16	21	27
						3682	3713				31	5	10	16	21	26
14	·3837	3867	3897	3927	3957	3986	4015	4044	4073	4102	29	5	10	15	19	24
15	1·4130	4158	4186	4214	4242	4269	4296	4323	4350	4377	27	5	9	14	18	23
16	·4403	4430	4456	4482	4508	4533	4559	4584	4609	4634	26	4	9	13	17	22
17	·4659	4684	4709	4733	4757	4781	4805	4829	4853	4876	24	4	8	12	16	20
18	·4900	4923	4946	4969	4992	5015	5037	5060	5082	5104	23	4	8	11	15	19
19	·5126	5148	5170	5192	5213	5235	5256	5278	5299	5320	21	4	7	11	14	18
20	1·5341	5361	5382	5402	5423	5443	5463	5484	5504	5523	20	3	7	10	13	17
21	·5543	5563	5583	5602	5621	5641	5660	5679	5698	5717	19	3	6	10	13	16
22	·5736	5754	5773	5792	5810	5828	5847	5865	5883	5901	18	3	6	9	12	15
23	·5919	5937	5954	5972	5990	6007	6024	6042	6059	6076	17	3	6	9	11	14
24	·6093	6110	6127	6144	6161	6177	6194	6210	6227	6243		3	6	8	11	14
25	1·6259	6276	6292	6308	6324	6340	6356	6371	6387	6403	16	3	5	8	11	13
26	·6418	6434	6449	6465	6480	6495	6510	6526	6541	6556	15	3	5	8	10	13
27	·6570	6585	6600	6615	6629	6644	6659	6673	6687	6702		2	5	7	10	12
28	·6716	6730	6744	6759	6773	6787	6801	6814	6828	6842	14	2	5	7	9	12
29	·6856	6869	6883	6896	6910	6923	6937	6950	6963	6977		2	4	7	9	11
30	1·6990	7003	7016	7029	7042	7055	7068	7080	7093	7106	13	2	4	6	9	11
31	·7118	7131	7144	7156	7168	7181	7193	7205	7218	7230		2	4	6	8	10
32	·7242	7254	7266	7278	7290	7302	7314	7326	7338	7349	12	2	4	6	8	10
33	·7361	7373	7384	7396	7407	7419	7430	7442	7453	7464		2	4	6	8	10
34	·7476	7487	7498	7509	7520	7531	7542	7553	7564	7575	11	2	4	6	7	9
35	1·7586	7597	7607	7618	7629	7640	7650	7661	7671	7682		2	4	5	7	9
36	·7692	7703	7713	7723	7734	7744	7754	7764	7774	7785	10	2	3	5	7	8
37	·7795	7805	7815	7825	7835	7844	7854	7864	7874	7884		2	3	5	7	8
38	·7893	7903	7913	7922	7932	7941	7951	7960	7970	7979		2	3	5	6	8
39	·7989	7998	8007	8017	8026	8035	8044	8053	8063	8072	9	2	3	5	6	8
40	1·8081	8090	8099	8108	8117	8125	8134	8143	8152	8161		1	3	4	6	7
41	·8169	8178	8187	8195	8204	8213	8221	8230	8238	8247		1	3	4	6	7
42	·8255	8264	8272	8280	8289	8297	8305	8313	8322	8330		1	3	4	6	7
43	·8338	8346	8354	8362	8370	8378	8386	8394	8402	8410	8	1	3	4	5	7
44	·8418	8426	8433	8441	8449	8457	8464	8472	8480	8487		1	3	4	5	6



x	0'	5'	12'	18'	24'	30'	36'	42'	48'	54'	$\Delta$	ADD				
	0°·0	0°·1	0°·2	0°·3	0°·4	0°·5	0°·6	0°·7	0°·8	0°·9		1'	2'	3'	4'	5'
45°	1·8495	8502	8510	8517	8525	8532	8540	8547	8555	8562	7	1	2	4	5	6
46	·8569	8577	8584	8591	8598	8606	8613	8620	8627	8634		1	2	4	5	6
47	·8641	8648	8655	8662	8669	8676	8683	8690	8697	8704		1	2	3	5	6
48	·8711	8718	8724	8731	8738	8745	8751	8758	8765	8771		1	2	3	4	6
49	·8778	8784	8791	8797	8804	8810	8817	8823	8830	8836		1	2	3	4	5
50	1·8843	8849	8855	8862	8868	8874	8880	8887	8893	8899	6	1	2	3	4	5
51	·8905	8911	8917	8923	8929	8935	8941	8947	8953	8959		1	2	3	4	5
52	·8965	8971	8977	8983	8989	8995	9000	9006	9012	9018		1	2	3	4	5
53	·9023	9029	9035	9041	9046	9052	9057	9063	9069	9074		1	2	3	4	5
54	·9080	9085	9091	9096	9101	9107	9112	9118	9123	9128		1	2	3	4	5
55	1·9134	9139	9144	9149	9155	9160	9165	9170	9175	9181	5	1	2	3	3	4
56	·9186	9191	9196	9201	9206	9211	9216	9221	9226	9231		1	2	3	3	4
57	·9236	9241	9246	9251	9255	9260	9265	9270	9275	9279		1	2	2	3	4
58	·9284	9289	9294	9298	9303	9308	9312	9317	9322	9326		1	2	2	3	4
59	·9331	9335	9340	9344	9349	9353	9358	9362	9367	9371		1	1	2	3	4
60	1·9375	9380	9384	9388	9393	9397	9401	9406	9410	9414	4	1	1	2	3	4
61	·9418	9422	9427	9431	9435	9439	9443	9447	9451	9455		1	1	2	3	3
62	·9459	9463	9467	9471	9475	9479	9483	9487	9491	9495		1	1	2	3	3
63	·9499	9503	9506	9510	9514	9518	9522	9525	9529	9533		1	1	2	3	3
64	·9537	9540	9544	9548	9551	9555	9558	9562	9566	9569		1	1	2	2	3
65	1·9573	9576	9580	9583	9587	9590	9594	9597	9601	9604	3	1	1	2	2	3
66	·9607	9611	9614	9617	9621	9624	9627	9631	9634	9637		1	1	2	2	3
67	·9640	9643	9647	9650	9653	9656	9659	9662	9666	9669		1	1	2	2	3
68	·9672	9675	9678	9681	9684	9687	9690	9693	9696	9699		1	1	2	2	3
69	·9702	9704	9707	9710	9713	9716	9719	9722	9724	9727		0	1	1	2	2
70	1·9730	9733	9735	9738	9741	9743	9746	9749	9751	9754	2	0	1	1	2	2
71	·9757	9759	9762	9764	9767	9770	9772	9775	9777	9780		0	1	1	2	2
72	·9782	9785	9787	9789	9792	9794	9797	9799	9801	9804		0	1	1	2	2
73	·9806	9808	9811	9813	9815	9817	9820	9822	9824	9826		0	1	1	1	2
74	·9828	9831	9833	9835	9837	9839	9841	9843	9845	9847		0	1	1	1	2
75	1·9849	9851	9853	9855	9857	9859	9861	9863	9865	9867	1	0	1	1	1	2
76	·9869	9871	9873	9875	9876	9878	9880	9882	9884	9885		0	1	1	1	2
77	·9887	9889	9891	9892	9894	9896	9897	9899	9901	9902		0	1	1	1	1
78	·9904	9906	9907	9909	9910	9912	9913	9915	9916	9918		0	1	1	1	1
79	·9919	9921	9922	9924	9925	9927	9928	9929	9931	9932		0	0	1	1	1
80	1·9934	9935	9936	9937	9939	9940	9941	9943	9944	9945	1	0	0	1	1	1
81	·9946	9947	9949	9950	9951	9952	9953	9954	9955	9956		0	0	1	1	1
82	·9958	9959	9960	9961	9962	9963	9964	9965	9966	9967		0	0	0	1	1
83	·9968	9968	9969	9970	9971	9972	9973	9974	9975	9975		0	0	0	1	1
84	·9976	9977	9978	9978	9979	9980	9981	9981	9982	9983		0	0	0	0	1
85	1·9983	9984	9985	9985	9986	9987	9987	9988	9988	9989	See Table below and on page 8.					
86	·9989	9990	9990	9991	9991	9992	9992	9993	9993	9994						
87	·9994	9994	9995	9995	9996	9996	9996	9996	9997	9997						
88	·9997	9998	9998	9998	9998	9999	9999	9999	9999	9999						
89	1·9999	9999	0·000	0·000	0·000	0·000	0·000	0·000	0·000	0·000						
90	0·0000															

Log Sine of Angles near 90° and Log Cosine of Small Angles

[Continued on page 8]

Sin	85°0'	85°9'	85°19'	85°29'	85°39'	85°49'	86°1'	86°12'	86°24'	86°38'
Log	1·9984	1·9985	1·9986	1·9987	1·9988	1·9989	1·9990	1·9991	1·9992	
Cos	5°0'	4°51'	4°41'	4°31'	4°21'	4°11'	3°59'	3°48'	3°36'	3°22'

For tabulated angles read the log to the left; e.g.,  $\log \sin 85^\circ 49'$  or  $\log \cos 4^\circ 11' = 1\cdot9988$

x	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	$\Delta$	SUBTRACT
	0°·0	0°·1	0°·2	0°·3	0°·4	0°·5	0°·6	0°·7	0°·8	0°·9		1' 2' 3' 4' 5'
0°	0·0000	0000	0000	0000	0000	0000	0000	0000	0000	1·9999		See Table below and on page 7.
1	1·9999	9999	9999	9999	9999	9999	9998	9998	9998	9998		
2	·9997	9997	9997	9996	9996	9996	9996	9995	9995	9994		
3	·9994	9994	9993	9993	9992	9992	9991	9991	9990	9990		
4	·9989	9989	9988	9988	9987	9987	9986	9985	9985	9984		
5	1·9983	9983	9982	9981	9981	9980	9979	9978	9978	9977		0 0 0 0 1
6	·9976	9975	9975	9974	9973	9972	9971	9970	9969	9968		0 0 0 1 1
7	·9968	9967	9966	9965	9964	9963	9962	9961	9960	9959		0 0 0 1 1
8	·9958	9956	9955	9954	9953	9952	9951	9950	9949	9947		0 0 1 1 1
9	·9946	9945	9944	9943	9941	9940	9939	9937	9936	9935		0 0 1 1 1
10	1·9934	9932	9931	9929	9928	9927	9925	9924	9922	9921		0 0 1 1 1
11	·9919	9918	9916	9915	9913	9912	9910	9909	9907	9906		0 1 1 1 1
12	·9904	9902	9901	9899	9897	9896	9894	9892	9891	9889		0 1 1 1 1
13	·9887	9885	9884	9882	9880	9878	9876	9875	9873	9871		0 1 1 1 2
14	·9869	9867	9865	9863	9861	9859	9857	9855	9853	9851		0 1 1 1 2
15	1·9849	9847	9845	9843	9841	9839	9837	9835	9833	9831		0 1 1 1 2
16	·9828	9826	9824	9822	9820	9817	9815	9813	9811	9808		0 1 1 1 2
17	·9806	9804	9801	9799	9797	9794	9792	9789	9787	9785		0 1 1 2 2
18	·9782	9780	9777	9775	9772	9770	9767	9764	9762	9759		0 1 1 2 2
19	·9757	9754	9751	9749	9746	9743	9741	9738	9735	9733		0 1 1 2 2
20	1·9730	9727	9724	9722	9719	9716	9713	9710	9707	9704		0 1 1 2 2
21	·9702	9699	9696	9693	9690	9687	9684	9681	9678	9675		1 1 2 2 3
22	·9672	9669	9666	9662	9659	9656	9653	9650	9647	9643		1 1 2 2 3
23	·9640	9637	9634	9631	9627	9624	9621	9617	9614	9611		1 1 2 2 3
24	·9607	9604	9601	9597	9594	9590	9587	9583	9580	9576		1 1 2 2 3
25	1·9573	9569	9566	9562	9558	9555	9551	9548	9544	9540		1 1 2 2 3
26	·9537	9533	9529	9525	9522	9518	9514	9510	9506	9503		1 1 2 3 3
27	·9499	9495	9491	9487	9483	9479	9475	9471	9467	9463		1 1 2 3 3
28	·9459	9455	9451	9447	9443	9439	9435	9431	9427	9422		1 1 2 3 3
29	·9418	9414	9410	9406	9401	9397	9393	9388	9384	9380		1 1 2 3 4
30	1·9375	9371	9367	9362	9358	9353	9349	9344	9340	9335		1 1 2 3 4
31	·9331	9326	9322	9317	9312	9308	9303	9298	9294	9289		1 2 2 3 4
32	·9284	9279	9275	9270	9265	9260	9255	9251	9246	9241		1 2 2 3 4
33	·9236	9231	9226	9221	9216	9211	9206	9201	9196	9191		1 2 3 3 4
34	·9186	9181	9175	9170	9165	9160	9155	9149	9144	9139		1 2 3 3 4
35	1·9134	9128	9123	9118	9112	9107	9101	9096	9091	9085		1 2 3 4 5
36	·9080	9074	9069	9063	9057	9052	9046	9041	9035	9029		1 2 3 4 5
37	·9023	9018	9012	9006	9000	8995	8989	8983	8977	8971		1 2 3 4 5
38	·8965	8959	8953	8947	8941	8935	8929	8923	8917	8911		1 2 3 4 5
39	·8905	8899	8893	8887	8880	8874	8868	8862	8855	8849		1 2 3 4 5
40	1·8843	8836	8830	8823	8817	8810	8804	8797	8791	8784		1 2 3 4 5
41	·8778	8771	8765	8758	8751	8745	8738	8731	8724	8718		1 2 3 4 6
42	·8711	8704	8697	8690	8683	8676	8669	8662	8655	8648		1 2 4 5 6
43	·8641	8634	8627	8620	8613	8606	8598	8591	8584	8577		1 2 4 5 6
44	·8569	8562	8555	8547	8540	8532	8525	8517	8510	8502		1 2 4 5 6

Log Sine of Angles near 90° and Log Cosine of Small Angles

Continued from page 7]

Sin	86°38'	86°51'	87°07'	87°23'	87°42'	88°03'	88°29'	89°07'	90°00'
Log	1·9993	1·9994	1·9995	1·9996	1·9997	1·9998	1·9999	0·0000	
Cos	3°22'	3°09'	2°53'	2°37'	2°18'	1°57'	1°31'	0°53'	0°0'

For tabulated angles read the log to the left; e.g., log sin 87°42' or log cos 2°18' = 1·9996

x	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	Δ	SUBTRACT									
	0°-0	0°-1	0°-2	0°-3	0°-4	0°-5	0°-6	0°-7	0°-8	0°-9		1'	2'	3'	4'	5'					
45°	1.8495	8487	8480	8472	8464	8457	8449	8441	8433	8426	8	1	3	4	5	6					
46	.8418	8410	8402	8394	8386	8378	8370	8362	8354	8346		1	3	4	5	7					
47	.8338	8330	8322	8313	8305	8297	8289	8280	8272	8264		1	3	4	6	7					
48	.8255	8247	8238	8230	8221	8213	8204	8195	8187	8178		1	3	4	6	7					
49	.8169	8161	8152	8143	8134	8125	8117	8108	8099	8090		1	3	4	6	7					
50	1.8081	8072	8063	8053	8044	8035	8026	8017	8007	7998	9	2	3	5	6	8					
51	.7989	7979	7970	7960	7951	7941	7932	7922	7913	7903		2	3	5	6	8					
52	.7893	7884	7874	7864	7854	7844	7835	7825	7815	7805		2	3	5	7	8					
53	.7795	7785	7774	7764	7754	7744	7734	7723	7713	7703		2	3	5	7	8					
54	.7692	7682	7671	7661	7650	7640	7629	7618	7607	7597		2	4	5	7	9					
55	1.7586	7575	7564	7553	7542	7531	7520	7509	7498	7487	11	2	4	6	7	9					
56	.7476	7464	7453	7442	7430	7419	7407	7396	7384	7373		2	4	6	8	10					
57	.7361	7349	7338	7326	7314	7302	7290	7278	7266	7254		2	4	6	8	10					
58	.7242	7230	7218	7205	7193	7181	7168	7156	7144	7131		2	4	6	8	10					
59	.7118	7106	7093	7080	7068	7055	7042	7029	7016	7003		2	4	6	9	11					
60	1.6990	6977	6963	6950	6937	6923	6910	6896	6883	6869	14	2	4	7	9	11					
61	.6856	6842	6828	6814	6801	6787	6773	6759	6744	6730		2	5	7	9	12					
62	.6716	6702	6687	6673	6659	6644	6629	6615	6600	6585		2	5	7	10	12					
63	.6570	6556	6541	6526	6510	6495	6480	6465	6449	6434		3	5	8	10	13					
64	.6418	6403	6387	6371	6356	6340	6324	6308	6292	6276		3	5	8	11	13					
65	1.6259	6243	6227	6210	6194	6177	6161	6144	6127	6110	17	3	6	8	11	14					
66	.6093	6076	6059	6042	6024	6007	5990	5972	5954	5937		3	6	9	11	14					
67	.5919	5901	5883	5865	5847	5828	5810	5792	5773	5754		3	6	9	12	15					
68	.5736	5717	5698	5679	5660	5641	5621	5602	5583	5563		3	6	10	13	16					
69	.5543	5523	5504	5484	5463	5443	5423	5402	5382	5361		3	7	10	13	17					
70	1.5341	5320	5299	5278	5256	5235	5213	5192	5170	5148	21	4	7	11	14	18					
71	.5126	5104	5082	5060	5037	5015	4992	4969	4946	4923		4	8	11	15	19					
72	.4900	4876	4853	4829	4805	4781	4757	4733	4709	4684		4	8	12	16	20					
73	.4659	4634	4609	4584	4559	4533	4508	4482	4456	4430		4	9	13	17	22					
74	.4403	4377	4350	4323	4296	4269	4242	4214	4186	4158		5	9	14	18	23					
75	1.4130	4102	4073	4044	4015	3986	3957	3927	3897	3867	29	5	10	15	19	24					
76	.3837	3806	3775	3745	3713	3682		3618	3586	3554		5	10	16	21	26					
77	.3521	3488	3455	3421	3387	3353		3284	3250	3214		6	11	17	23	28					
78	.3179	3143	3107	3070	3034	2997		2921	2883	2845		6	12	18	24	30					
79	.2806	2767	2727	2687	2647	2606		2524	2482	2439		7	13	20	27	33					
80	1.2397	2353	2310	2266	2221	2176		2085	2038	1991	44	7	15	22	29	37					
81	.1943	1895	1847	1797	1747	1697		1594	1542	1489		8	16	23	31	39					
82	.1436	1381	1326	1271	1214	1157		1040	0981	0920		8	16	25	33	41					
83	.0859	0797	0734	0670	0605	0539		0403	0334	0264		9	17	26	35	43					
84	1.0192	0120	0046	2.9970	2.9894	2.9816	2.9736	2.9655	2.9573	2.9489		Differences here vary too rapidly for interpolation by P.P.s. See Table on page 10.									
85	2.9403	9315	9226	9135	9042	8946	8849	8749	8647	8543	52										
86	.8436	8326	8213	8098	7979	7857	7731	7602	7468	7330											
87	.7188	7041	6889	6731	6567	6397	6220	6035	5842	5640											
88	.5428	5206	4971	4723	4459	4179	3880	3558	3210	2832											
89	2.242	2.196	2.145	2.087	2.020	1.941	1.844	1.719	1.543	1.242											
90	-∞																				

$x$	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	
0 00	—	4 464	4 765	4 941	5 066	5 163	5 242	5 309	5 367	5 418	5 464	0
0 10	3 4637	5051	5429	5777	6099	6398	6678	6942	7190	7425	7648	89 50
0 20	3 7648	7859	8061	8255	8439	8617	8787	8951	9109	9261	9408	89 30
0 30	3 9408	9551	9689	9822	9952	2 0078	2 0200	2 0319	2 0435	2 0548	2 0658	89 20
0 40	2 0658	0765	0870	0972	1072	1169	1265	1358	1450	1539	1627	89 10
0 50	2 1627	1713	1797	1880	1961	2041	2119	2196	2271	2346	2419	89 00
1 00	2 2419	2490	2561	2630	2699	2766	2832	2898	2962	3025	3088	88 50
1 10	3 088	3150	3210	3270	3329	3388	3445	3502	3558	3613	3668	88 40
1 20	3 3668	3722	3775	3828	3880	3931	3982	4032	4082	4131	4179	88 30
1 30	2 4179	4227	4275	4322	4368	4414	4459	4504	4549	4693	4637	88 20
1 40	4 4637	4680	4723	4765	4807	4848	4890	4930	4971	5011	5050	88 10
1 50	5 050	5090	5129	5167	5206	5243	5281	5318	5355	5392	5428	88 00
2 00	2 5428	5464	5500	5535	5571	5605	5640	5674	5708	5742	5776	87 50
2 10	5 776	5809	5842	5875	5907	5939	5972	6003	6035	6066	6097	87 40
2 20	6 097	6128	6159	6189	6220	6250	6279	6309	6339	6368	6397	87 30
2 30	2 6397	6426	6454	6483	6511	6539	6567	6595	6622	6650	6677	87 20
2 40	6 677	6704	6731	6758	6784	6810	6837	6863	6889	6914	6940	87 10
2 50	6 940	6965	6991	7016	7041	7066	7090	7115	7140	7164	7188	87 00
3 00	2 7188	7212	7236	7260	7283	7307	7330	7354	7377	7400	7423	86 50
3 10	7 7423	7445	7468	7491	7513	7535	7557	7580	7602	7623	7645	86 40
3 20	7 7645	7667	7688	7710	7731	7752	7773	7794	7815	7836	7857	86 30
3 30	2 7857	7877	7898	7918	7939	7959	7979	7999	8019	8039	8059	86 20
3 40	8 8059	8078	8098	8117	8137	8156	8175	8194	8213	8232	8251	86 10
3 50	8 8251	8270	8289	8307	8326	8345	8363	8381	8400	8418	8436	86 00
4 00	2 8436	8454	8472	8490	8508	8525	8543	8560	8578	8595	8613	85 50
4 10	8 8613	8630	8647	8665	8682	8699	8716	8733	8749	8766	8783	85 40
4 20	8 8783	8799	8816	8833	8849	8865	8882	8898	8914	8930	8946	85 30
4 30	2 8946	8962	8978	8994	9010	9026	9042	9057	9073	9089	9104	85 20
4 40	9 9104	9119	9135	9150	9166	9181	9196	9211	9226	9241	9256	85 10
4 50	9 9256	9271	9286	9301	9315	9330	9345	9359	9374	9388	9403	85 00
5 00	2 9403	9417	9432	9446	9460	9475	9489	9503	9517	9531	9545	84 50
5 10	9 9545	9559	9573	9587	9601	9614	9628	9642	9655	9669	9682	84 40
5 20	9 9682	9696	9709	9723	9736	9750	9763	9776	9789	9803	9816	84 30
5 30	2 9816	9829	9842	9855	9868	9881	9894	9907	9919	9932	9945	84 20
5 40	2 9945	9958	9970	9983	2 9996	2 0008	2 0021	2 0033	2 0046	2 0058	2 0070	84 10
5 50	2 0070	0083	0095	0107	0120	0132	0144	0156	0168	0180	0192	84 00
6 00	2 0192	0204	0216	0228	0240	0252	0264	0276	0287	0299	0311	83 50
6 10	0 0311	0323	0334	0346	0357	0369	0380	0392	0403	0415	0426	83 40
6 20	0 0426	0438	0449	0460	0472	0483	0494	0505	0516	0527	0539	83 30
6 30	2 0539	0550	0561	0572	0583	0594	0605	0616	0626	0637	0648	83 20
6 40	0 0648	0659	0670	0680	0691	0702	0712	0723	0734	0744	0755	83 10
6 50	0 0755	0765	0776	0786	0797	0807	0818	0828	0838	0849	0859	83 00
7 00	2 0859	0869	0879	0890	0900	0910	0920	0930	0940	0951	0961	82 50
7 10	0 0961	0971	0981	0991	1001	1011	1020	1030	1040	1050	1060	82 40
7 20	0 1060	1070	1080	1089	1099	1109	1118	1128	1138	1147	1157	82 30
7 30	2 1157	1167	1176	1186	1195	1205	1214	1224	1233	1242	1252	82 20
7 40	0 1252	1261	1271	1280	1289	1299	1308	1317	1326	1336	1345	82 10
7 50	0 1345	1354	1363	1372	1381	1390	1399	1409	1418	1427	1436	82 00
	10'	9'	8'	7'	6'	5'	4'	3'	2'	1'	0'	$x$

$x$	$S$	$\log \sin x$
0	4 4637	—
111	4 4636	2 5108
169	4 4635	6 529
212	4 4634	7 904
247	4 4633	8 574
278	4 4632	9 085
306	4 4631	9 498
332	4 4630	9 984
355	4 4629	1 0142
378	4 4628	2 0405
399	4 4627	3 0638
419	4 4626	4 0849
438	4 4625	5 1041
456	4 4624	6 1217
473	4 4623	7 1379
490	4 4623	8 1531

0 00	2 2419	—
1 11	2 2418	2 2888
2 40	2 2417	6 225
3 21	2 2416	7 7483
3 85	2 2415	8 273
4 40	2 2414	8 851
4 89	2 2413	9 306
5 33	2 2412	9 9682
5 74	2 2411	1 0002
6 12	2 2410	1 0281
6 48	2 2409	1 0527
6 82	2 2408	1 0749
7 14	2 2407	1 0949
7 45	2 2406	1 1133
7 75	2 2405	1 1302
8 04	2 2405	1 1458

rad.	0 0000	—
0 000	0 0000	2 4196
0 026	0 9999	6 580
0 045	0 9998	7 688
0 057	0 9997	8 418
0 069	0 9996	8 962
0 078	0 9995	9 397
0 087	0 9994	9 9759
0 0947	0 9993	1 0068
0 107	0 9992	1 0339
0 1083	0 9991	1 0580
0 1145	0 9990	1 0796
0 1204	0 9989	1 0992
0 1260	0 9988	1 1172
0 1313	0 9987	1 1338
0 1365	0 9986	1 1492

$\log \sin x - \log x + S$   
 $\log x - \log \sin x - S$

where  $S$  is taken from the table in the same units as  $x$ .

Example.

Find  $\log \sin x$  when  $x = 5937' 4$

$x$  in mins = 337.4  
 $\log 337.4 = 2.5281$   
 $S$  for 337.4 = 4.4630  
 (Add)  
 $\log \sin x = 2.9911$

## LOGARITHMS OF COSINES, 82° to 90°

(Read up and from right to left)



x	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	x	T	log tan x	
0 0	—∞	4.464	4.765	4.941	5.066	5.163	5.242	5.309	5.367	5.418	5.464	0 0	0	4.4637	2.1087
0 10	3.4637	5051	5429	5777	6099	6398	6678	6942	7190	7425	7648	0 10	44	4.638	2.1087
0 20	3.7648	7860	8062	8255	8439	8617	8787	8951	9109	9261	9409	0 20	100	4.639	2.1087
0 30	3.9409	9551	9689	9823	9952	1.0078	1.0200	1.0319	1.0435	1.0548	1.0658	0 30	135	4.640	2.1087
0 40	2.0658	0765	0870	0972	1072	1170	1265	1359	1450	1540	1627	0 40	162	4.641	2.1087
0 50	2.1627	1713	1798	1880	1962	2041	2120	2196	2272	2346	2419	0 50	185	4.642	2.1087
1 00	2.2419	2491	2562	2631	2700	2767	2833	2899	2963	3026	3089	1 00	206	4.643	2.1087
1 10	3.089	3150	3211	3271	3330	3389	3446	3503	3559	3614	3669	1 10	225	4.644	2.1087
1 20	3.669	3723	3776	3829	3881	3932	3983	4033	4083	4132	4181	1 20	242	4.644	2.1087
1 30	2.4181	4229	4276	4323	4370	4416	4461	4506	4551	4595	4638	1 30	259	4.645	2.1087
1 40	4.638	4682	4725	4767	4809	4851	4892	4933	4973	5013	5053	1 40	274	4.646	2.1087
1 50	5.053	5092	5131	5170	5208	5246	5283	5321	5358	5394	5431	1 50	288	4.647	2.1087
2 00	2.5431	5467	5503	5538	5573	5608	5643	5677	5711	5745	5779	2 00	302	4.648	2.1087
2 10	5.779	5812	5845	5878	5911	5943	5975	6007	6038	6070	6101	2 10	315	4.649	2.1087
2 20	6.101	6132	6163	6193	6223	6254	6283	6313	6343	6372	6401	2 20	328	4.650	2.1087
2 30	2.6401	6430	6459	6487	6515	6544	6571	6599	6627	6654	6682	2 30	341	4.651	2.1087
2 40	6.682	6709	6736	6762	6789	6815	6842	6868	6894	6920	6945	2 40	354	4.652	2.1087
2 50	6.945	6971	6996	7021	7046	7071	7096	7121	7145	7170	7194	2 50	367	4.653	2.1087
3 00	2.7194	7218	7242	7266	7290	7313	7337	7360	7383	7406	7429	3 00	380	4.654	2.1087
3 10	7.429	7452	7475	7497	7520	7542	7565	7587	7609	7631	7652	3 10	393	4.655	2.1087
3 20	7.652	7674	7696	7717	7739	7760	7781	7802	7823	7844	7865	3 20	406	4.656	2.1087
3 30	2.7865	7886	7906	7927	7947	7967	7988	8008	8028	8048	8067	3 30	419	4.657	2.1087
3 40	8.067	8087	8107	8126	8146	8165	8185	8204	8223	8242	8261	3 40	432	4.658	2.1087
3 50	8.261	8280	8299	8317	8336	8355	8373	8392	8410	8428	8446	3 50	445	4.659	2.1087
4 00	2.8446	8465	8483	8501	8518	8536	8554	8572	8589	8607	8624	4 00	458	4.660	2.1087
4 10	8.624	8642	8659	8676	8694	8711	8728	8745	8762	8778	8795	4 10	471	4.661	2.1087
4 20	8.795	8812	8829	8845	8862	8878	8895	8911	8927	8944	8960	4 20	484	4.662	2.1087
4 30	2.8960	8976	8992	9008	9024	9040	9056	9071	9087	9103	9118	4 30	497	4.663	2.1087
4 40	9.118	9134	9150	9165	9180	9196	9211	9226	9241	9256	9272	4 40	510	4.664	2.1087
4 50	9.272	9287	9302	9316	9331	9346	9361	9376	9390	9405	9420	4 50	523	4.665	2.1087
5 00	2.9420	9434	9449	9463	9477	9492	9506	9520	9534	9549	9563	5 00	536	4.666	2.1087
5 10	9.563	9577	9591	9605	9619	9633	9646	9660	9674	9688	9701	5 10	549	4.667	2.1087
5 20	9.701	9715	9729	9742	9756	9769	9782	9796	9809	9823	9836	5 20	562	4.668	2.1087
5 30	2.9836	9849	9862	9875	9888	9901	9915	9928	9940	9953	9966	5 30	575	4.669	2.1087
5 40	2.9966	9979	9992	1.0005	1.0017	1.0030	1.0043	1.0055	1.0068	1.0080	1.0093	5 40	588	4.670	2.1087
5 50	1.0093	0105	0118	0130	0143	0155	0167	0180	0192	0204	0216	5 50	601	4.671	2.1087
6 00	1.0216	0228	0240	0253	0265	0277	0289	0300	0312	0324	0336	6 00	614	4.672	2.1087
6 10	0.0336	0348	0360	0371	0383	0395	0407	0418	0430	0441	0453	6 10	627	4.673	2.1087
6 20	0.0453	0464	0476	0487	0499	0510	0521	0533	0544	0555	0567	6 20	640	4.674	2.1087
6 30	1.0567	0578	0589	0600	0611	0622	0633	0645	0656	0667	0678	6 30	653	4.675	2.1087
6 40	0.0678	0688	0699	0710	0721	0732	0743	0754	0764	0775	0786	6 40	666	4.676	2.1087
6 50	0.0786	0796	0807	0818	0828	0839	0849	0860	0871	0881	0891	6 50	679	4.677	2.1087
7 00	1.0891	0902	0912	0923	0933	0943	0954	0964	0974	0984	0995	7 00	692	4.678	2.1087
7 10	0.0995	1005	1015	1025	1035	1045	1055	1066	1076	1086	1096	7 10	705	4.679	2.1087
7 20	1.0996	1106	1116	1125	1135	1145	1155	1165	1175	1185	1194	7 20	718	4.680	2.1087
7 30	1.1194	1204	1214	1223	1233	1243	1252	1262	1272	1281	1291	7 30	731	4.681	2.1087
7 40	1.1291	1300	1310	1319	1329	1338	1348	1357	1367	1376	1385	7 40	744	4.682	2.1087
7 50	1.1385	1395	1404	1413	1423	1432	1441	1450	1460	1469	1478	7 50	757	4.683	2.1087
	10'	9'	8'	7'	6'	5'	4'	3'	2'	1'	0'				x

log tan x = log x + T  
log x = log tan x - T  
where T is taken from the table in the same units as x.

Example.  
Find x when  
log tan x' = 2.5636  
log tan x = 2.5636  
T for 2.5636 = 4.4639  
(Subtract)  
log x = 2.0997  
x' = 125° 8'  
= 295° 8'

## LOGARITHMS OF COTANGENTS, 82° to 90°

(Read up and from right to left)

log tan x = log x + T  
 log x = log tan x - T  
 where T is taken from the table in the same units as x.

Example.  
 Find x when  
 $\log \tan x = 2.5636$   
 $\log \tan x = 2.5636$   
 T for 2.5636 = 4.4639  
 (Subtract)  
 $\log x = 2.0997$   
 $x = 125'.8$   
 $= 2^\circ 5'.8$

x	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	$\Delta$	ADD				
	0°·0	0°·1	0°·2	0°·3	0°·4	0°·5	0°·6	0°·7	0°·8	0°·9		1'	2'	3'	4'	5'
0°	—∞	3·242	3·543	3·719	3·844	3·941	2·020	2·087	2·145	2·196		Differences vary too rapidly for interpolation by P.P.s. See Table on page 11.				
1	2·2419	2833	3211	3559	3881	4181	4461	4725	4973	5208						
2	·5431	5643	5845	6038	6223	6401	6571	6736	6894	7046						
3	·7194	7337	7475	7609	7739	7865	7988	8107	8223	8336						
4	·8446	8554	8659	8762	8862	8960	9056	9150	9241	9331		Differences vary too rapidly for interpolation by P.P.s. See Table on page 11.				
5	2·9420	9506	9591	9674	9756	9836	9915	9992	1·0068	1·0143						
6	1·0216	0289	0360	0430	0499	0567	0633	0699	0764	0828						
7	·0891	0954	1015	1076	1135	1194	1252	1310	1367	1423						
8	·1478	1533	1587	1640	1693	1745					53	9	18	27	35	44
9	·1997	2046	2094	2142	2189	2236	2282	2328	2374	2419	50	8	17	25	33	42
											48	8	16	24	32	40
											45	8	15	23	30	38
10	1·2463	2507	2551	2594	2637	2680					43	7	14	22	29	36
11	·2887	2927	2967	3006	3046	3085	3123	3162	3200	3237	41	7	14	21	27	34
											40	7	13	20	27	33
											38	6	13	19	25	32
											37	6	12	18	25	31
12	·3275	3312	3349	3385	3422	3458	3493	3529	3564	3599	35	6	12	17	23	29
13	·3634	3668	3702	3736	3770	3804	3837	3870	3903	3935	34	6	11	17	23	28
											33	5	11	16	22	27
											31	5	10	16	21	26
14	·3968	4000	4032	4064	4095	4127	4158	4189	4220	4250						
15	1·4281	4311	4341	4371	4400	4430	4459	4488	4517	4546	29	5	10	15	19	24
16	·4575	4603	4632	4661	4688	4716	4744	4771	4799	4826	28	5	9	14	19	23
17	·4853	4880	4907	4934	4961	4987	5014	5040	5066	5092	26	4	9	13	17	22
18	·5118	5143	5169	5195	5220	5245	5270	5295	5320	5345	25	4	8	13	17	21
19	·5370	5394	5419	5443	5467	5491	5516	5539	5563	5587	24	4	8	12	16	20
20	1·5611	5634	5658	5681	5704	5727	5750	5773	5796	5819	23	4	8	12	15	19
21	·5842	5864	5887	5909	5932	5954	5976	5998	6020	6042	22	4	7	11	15	18
22	·6064	6086	6108	6129	6151	6172	6194	6215	6236	6257		4	7	11	14	18
23	·6279	6300	6321	6341	6362	6383	6404	6424	6445	6465	21	3	7	10	14	17
24	·6486	6506	6527	6547	6567	6587	6607	6627	6647	6667	20	3	7	10	13	17
25	1·6687	6706	6726	6746	6765	6785	6804	6824	6843	6863						
26	·6882	6901	6920	6939	6958	6977	6996	7015	7034	7053	19	3	6	10	13	16
27	·7072	7090	7109	7128	7146	7165	7183	7202	7220	7238		3	6	9	12	15
28	·7257	7275	7293	7311	7330	7348	7366	7384	7402	7420	18	3	6	9	12	15
29	·7438	7455	7473	7491	7509	7526	7544	7562	7579	7597		3	6	9	12	15
30	1·7614	7632	7649	7667	7684	7701	7719	7736	7753	7771						
31	·7788	7805	7822	7839	7856	7873	7890	7907	7924	7941	17	3	6	9	11	14
32	·7958	7975	7992	8008	8025	8042	8059	8075	8092	8109		3	6	8	11	14
33	·8125	8142	8158	8175	8191	8208	8224	8241	8257	8274		3	6	8	11	14
34	·8290	8306	8323	8339	8355	8371	8388	8404	8420	8436		3	5	8	11	14
35	1·8452	8468	8484	8501	8517	8533	8549	8565	8581	8597	16	3	5	8	11	13
36	·8613	8629	8644	8660	8676	8692	8708	8724	8740	8755		3	5	8	11	13
37	·8771	8787	8803	8818	8834	8850	8865	8881	8897	8912		3	5	8	10	13
38	·8928	8944	8959	8975	8990	9006	9022	9037	9053	9068		3	5	8	10	13
39	·9084	9099	9115	9130	9146	9161	9176	9192	9207	9223		3	5	8	10	13
40	1·9238	9254	9269	9284	9300	9315	9330	9346	9361	9376						
41	·9392	9407	9422	9438	9453	9468	9483	9499	9514	9529		3	5	8	10	13
42	·9544	9560	9575	9590	9605	9621	9636	9651	9666	9681		3	5	8	10	13
43	·9697	9712	9727	9742	9757	9772	9788	9803	9818	9833	15	3	5	8	10	13
44	·9848	9864	9879	9894	9909	9924	9939	9955	9970	9985		3	5	8	10	13

$$\text{Log Cot } x = \text{Log Tan } (90^\circ - x) = -\text{Log Tan } x$$

x	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	Δ	ADD				
	0°-0	0°-1	0°-2	0°-3	0°-4	0°-5	0°-6	0°-7	0°-8	0°-9		1'	2'	3'	4'	5'
45°	0.0000	0015	0030	0045	0061	0076	0091	0106	0121	0136	15	3	5	8	10	13
46	0.0152	0167	0182	0197	0212	0228	0243	0258	0273	0288		3	5	8	10	13
47	0.0303	0319	0334	0349	0364	0379	0395	0410	0425	0440		3	5	8	10	13
48	0.0456	0471	0486	0501	0517	0532	0547	0562	0578	0593		3	5	8	10	13
49	0.0608	0624	0639	0654	0670	0685	0700	0716	0731	0746		3	5	8	10	13
50	0.0762	0777	0793	0808	0824	0839	0854	0870	0885	0901		3	5	8	10	13
51	0.0916	0932	0947	0963	0978	0994	1010	1025	1041	1056		3	5	8	10	13
52	0.1072	1088	1103	1119	1135	1150	1166	1182	1197	1213		3	5	8	10	13
53	0.1229	1245	1260	1276	1292	1308	1324	1340	1356	1371		3	5	8	11	13
54	0.1387	1403	1419	1435	1451	1467	1483	1499	1516	1532	16	3	5	8	11	13
55	0.1548	1564	1580	1596	1612	1629	1645	1661	1677	1694		3	5	8	11	14
56	0.1710	1726	1743	1759	1776	1792	1809	1825	1842	1858		3	6	8	11	14
57	0.1875	1891	1908	1925	1941	1958	1975	1992	2008	2025		3	6	8	11	14
58	0.2042	2059	2076	2093	2110	2127	2144	2161	2178	2195	17	3	6	9	11	14
59	0.2212	2229	2247	2264	2281	2299	2316	2333	2351	2368		3	6	9	12	15
60	0.2386	2403	2421	2438	2456	2474	2491	2509	2527	2545		3	6	9	12	15
61	0.2562	2580	2598	2616	2634	2652	2670	2689	2707	2725	18	3	6	9	12	15
62	0.2743	2762	2780	2798	2817	2835	2854	2872	2891	2910		3	6	9	12	15
63	0.2928	2947	2966	2985	3004	3023	3042	3061	3080	3099	19	3	6	10	13	16
64	0.3118	3137	3157	3176	3196	3215	3235	3254	3274	3294		3	6	10	13	16
65	0.3313	3333	3353	3373	3393	3413	3433	3453	3473	3494	20	3	7	10	13	17
66	0.3514	3535	3555	3576	3596	3617	3638	3659	3679	3700	21	3	7	10	14	17
67	0.3721	3743	3764	3785	3806	3828	3849	3871	3892	3914		4	7	11	14	18
68	0.3936	3958	3980	4002	4024	4046	4068	4091	4113	4136	22	4	7	11	15	18
69	0.4158	4181	4204	4227	4250	4273	4296	4319	4342	4366	23	4	8	12	15	19
70	0.4389	4413	4437	4461	4484	4509	4533	4557	4581	4606	24	4	8	12	16	20
71	0.4630	4655	4680	4705	4730	4755	4780	4805	4831	4857	25	4	8	13	17	21
72	0.4882	4908	4934	4960	4986	5013	5039	5066	5093	5120	26	4	9	13	17	22
73	0.5147	5174	5201	5229	5256	5284	5312	5340	5368	5397	28	5	9	14	19	23
74	0.5425	5454	5483	5512	5541	5570	5600	5629	5659	5689	29	5	10	15	19	24
75	0.5719	5750	5780	5811	5842	5873	5905	5936	5968	6000	31	5	10	16	21	26
76	0.6032	6065	6097	6130	6163	6196	6230	6264	6298	6332	33	6	11	17	22	28
77	0.6366	6401	6436	6471	6507	6542	6578	6615	6651	6688	36	6	12	18	24	30
78	0.6725	6763	6800	6838	6877	6915	6954	6994	7033	7073	39	6	13	19	26	32
79	0.7113	7154	7195	7236	7278	7320	7363	7406	7449	7493	42	7	14	21	28	35
80	0.7537	7581	7626	7672	7718	7764	7811	7858	7906	7954	47	8	16	23	31	39
81	0.8003	8052	8102	8152	8203	8255	8307	8360	8413	8467	52	9	17	26	35	43
82	0.8522	8577	8633	8690	8748	8806	8865	8924	8985	9046						
83	0.9109	9172	9236	9301	9367	9433	9501	9570	9640	9711						
84	0.9784	9857	9932	1.0008	1.0085	1.0164	1.0244	1.0326	1.0409	1.0494						
85	1.0580	0669	0759	0850	0944	1040	1138	1238	1341	1446						
86	1.1554	1664	1777	1893	2012	2135	2261	2391	2525	2663						
87	1.2806	2954	3106	3264	3429	3599	3777	3962	4155	4357						
88	1.4569	4792	5027	5275	5539	5819	6119	6441	6789	7167						
89	1.758	1.804	1.855	1.913	1.980	2.059	2.156	2.281	2.457	2.758						
90	∞															

Differences here vary too rapidly for interpolation by P.P.s. See note below.

For untabulated angles greater than 82° use  $\text{Log Tan } x = -\text{Log Tan } (90^\circ - x)$ . See table on page 11

Example.  $\text{Log tan } 85^\circ 13' = -\text{log tan } 4^\circ 47' = -(\bar{2}.9226) = 1.0774$

x	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	$\Delta$	ADD				
	0°-0	0°-1	0°-2	0°-3	0°-4	0°-5	0°-6	0°-7	0°-8	0°-9		1'	2'	3'	4'	5'
0°	0-0000	0017	0035	0052	0070	0087	0105	0122	0140	0157	18	3	6	9	12	15
1	-0175	0192	0209	0227	0244	0262	0279	0297	0314	0332		3	6	9	12	15
2	-0349	0366	0384	0401	0419	0436	0454	0471	0488	0506		3	6	9	12	15
3	-0523	0541	0558	0576	0593	0610	0628	0645	0663	0680		3	6	9	12	15
4	-0698	0715	0732	0750	0767	0785	0802	0819	0837	0854		3	6	9	12	14
5	0-0872	0889	0906	0924	0941	0958	0976	0993	1011	1028	17	3	6	9	12	14
6	-1045	1063	1080	1097	1115	1132	1149	1167	1184	1201		3	6	9	12	14
7	-1219	1236	1253	1271	1288	1305	1323	1340	1357	1374		3	6	9	12	14
8	-1392	1409	1426	1444	1461	1478	1495	1513	1530	1547		3	6	9	11	14
9	-1564	1582	1599	1616	1633	1650	1668	1685	1702	1719		3	6	9	11	14
10	0-1736	1754	1771	1788	1805	1822	1840	1857	1874	1891	16	3	6	9	11	14
11	-1908	1925	1942	1959	1977	1994	2011	2028	2045	2062		3	6	9	11	14
12	-2079	2096	2113	2130	2147	2164	2181	2198	2215	2233		3	6	9	11	14
13	-2250	2267	2284	2300	2317	2334	2351	2368	2385	2402		3	6	8	11	14
14	-2419	2436	2453	2470	2487	2504	2521	2538	2554	2571		3	6	8	11	14
15	0-2588	2605	2622	2639	2656	2672	2689	2706	2723	2740	15	3	6	8	11	14
16	-2756	2773	2790	2807	2823	2840	2857	2874	2890	2907		3	6	8	11	14
17	-2924	2940	2957	2974	2990	3007	3024	3040	3057	3074		3	6	8	11	14
18	-3090	3107	3123	3140	3156	3173	3190	3206	3223	3239		3	6	8	11	14
19	-3256	3272	3289	3305	3322	3338	3355	3371	3387	3404		3	5	8	11	14
20	0-3420	3437	3453	3469	3486	3502	3518	3535	3551	3567	14	3	5	8	11	14
21	-3584	3600	3616	3633	3649	3665	3681	3697	3714	3730		3	5	8	11	14
22	-3746	3762	3778	3795	3811	3827	3843	3859	3875	3891		3	5	8	11	13
23	-3907	3923	3939	3955	3971	3987	4003	4019	4035	4051		3	5	8	11	13
24	-4067	4083	4099	4115	4131	4147	4163	4179	4195	4210		3	5	8	11	13
25	0-4226	4242	4258	4274	4289	4305	4321	4337	4352	4368	13	3	5	8	11	13
26	-4384	4399	4415	4431	4446	4462	4478	4493	4509	4524		3	5	8	10	13
27	-4540	4555	4571	4586	4602	4617	4633	4648	4664	4679		3	5	8	10	13
28	-4695	4710	4726	4741	4756	4772	4787	4802	4818	4833		3	5	8	10	13
29	-4848	4863	4879	4894	4909	4924	4939	4955	4970	4985		3	5	8	10	13
30	0-5000	5015	5030	5045	5060	5075	5090	5105	5120	5135	12	3	5	8	10	13
31	-5150	5165	5180	5195	5210	5225	5240	5255	5270	5284		2	5	7	10	12
32	-5299	5314	5329	5344	5358	5373	5388	5402	5417	5432		2	5	7	10	12
33	-5446	5461	5476	5490	5505	5519	5534	5548	5563	5577		2	5	7	10	12
34	-5592	5606	5621	5635	5650	5664	5678	5693	5707	5721		2	5	7	10	12
35	0-5736	5750	5764	5779	5793	5807	5821	5835	5850	5864	11	2	5	7	9	12
36	-5878	5892	5906	5920	5934	5948	5962	5976	5990	6004		2	5	7	9	12
37	-6018	6032	6046	6060	6074	6088	6101	6115	6129	6143		2	5	7	9	12
38	-6157	6170	6184	6198	6211	6225	6239	6252	6266	6280		2	5	7	9	11
39	-6293	6307	6320	6334	6347	6361	6374	6388	6401	6414		2	4	7	9	11
40	0-6428	6441	6455	6468	6481	6494	6508	6521	6534	6547	10	2	4	7	9	11
41	-6561	6574	6587	6600	6613	6626	6639	6652	6665	6678		2	4	7	9	11
42	-6691	6704	6717	6730	6743	6756	6769	6782	6794	6807		2	4	6	9	11
43	-6820	6833	6845	6858	6871	6884	6896	6909	6921	6934		2	4	6	8	11
44	-6947	6959	6972	6984	6997	7009	7022	7034	7046	7059		2	4	6	8	10
45	0-7071	7083	7096	7108	7120	7133	7145	7157	7169	7181	9	2	4	6	8	10
46	-7193	7206	7218	7230	7242	7254	7266	7278	7290	7302		2	4	6	8	10
47	-7314	7325	7337	7349	7361	7373	7385	7396	7408	7420		2	4	6	8	10
48	-7431	7443	7455	7466	7478	7490	7501	7513	7524	7536		2	4	6	8	10
49	-7547	7559	7570	7581	7593	7604	7615	7627	7638	7649		2	4	6	8	9



X	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	$\Delta$	ADD				
	0°·0	0°·1	0°·2	0°·3	0°·4	0°·5	0°·6	0°·7	0°·8	0°·9		1'	2'	3'	4'	5'
50°	0·7660	7672	7683	7694	7705	7716	7727	7738	7749	7760	11	2	4	6	7	9
51	·7771	7782	7793	7804	7815	7826	7837	7848	7859	7869		2	4	5	7	9
52	·7880	7891	7902	7912	7923	7934	7944	7955	7965	7976	10	2	4	5	7	9
53	·7986	7997	8007	8018	8028	8039	8049	8059	8070	8080		2	3	5	7	9
54	·8090	8100	8111	8121	8131	8141	8151	8161	8171	8181	9	2	3	5	7	8
55	0·8192	8202	8211	8221	8231	8241	8251	8261	8271	8281		2	3	5	7	8
56	·8290	8300	8310	8320	8329	8339	8348	8358	8368	8377	8	2	3	5	6	8
57	·8387	8396	8406	8415	8425	8434	8443	8453	8462	8471		2	3	5	6	8
58	·8480	8490	8499	8508	8517	8526	8536	8545	8554	8563	7	2	3	5	6	8
59	·8572	8581	8590	8599	8607	8616	8625	8634	8643	8652		1	3	4	6	7
60	0·8660	8669	8678	8686	8695	8704	8712	8721	8729	8738	6	1	3	4	6	7
61	·8746	8755	8763	8771	8780	8788	8796	8805	8813	8821		1	3	4	6	7
62	·8829	8838	8846	8854	8862	8870	8878	8886	8894	8902	5	1	3	4	5	7
63	·8910	8918	8926	8934	8942	8949	8957	8965	8973	8980		1	3	4	5	6
64	·8988	8996	9003	9011	9018	9026	9033	9041	9048	9056	4	1	3	4	5	6
65	0·9063	9070	9078	9085	9092	9100	9107	9114	9121	9128		1	2	4	5	6
66	·9135	9143	9150	9157	9164	9171	9178	9184	9191	9198	3	1	2	4	5	6
67	·9205	9212	9219	9225	9232	9239	9245	9252	9259	9265		1	2	3	4	6
68	·9272	9278	9285	9291	9298	9304	9311	9317	9323	9330	2	1	2	3	4	5
69	·9336	9342	9348	9354	9361	9367	9373	9379	9385	9391		1	2	3	4	5
70	0·9397	9403	9409	9415	9421	9426	9432	9438	9444	9449	1	1	2	3	4	5
71	·9455	9461	9466	9472	9478	9483	9489	9494	9500	9505		1	2	3	4	5
72	·9511	9516	9521	9527	9532	9537	9542	9548	9553	9558	5	1	2	3	3	4
73	·9563	9568	9573	9578	9583	9588	9593	9598	9603	9608		1	2	2	3	4
74	·9613	9617	9622	9627	9632	9636	9641	9646	9650	9655	4	1	2	2	3	4
75	0·9659	9664	9668	9673	9677	9681	9686	9690	9694	9699		1	1	2	3	4
76	·9703	9707	9711	9715	9720	9724	9728	9732	9736	9740	3	1	1	2	3	4
77	·9744	9748	9751	9755	9759	9763	9767	9770	9774	9778		1	1	2	2	3
78	·9781	9785	9789	9792	9796	9799	9803	9806	9810	9813	2	1	1	2	2	3
79	·9816	9820	9823	9826	9829	9833	9836	9839	9842	9845		1	1	2	2	3
80	0·9848	9851	9854	9857	9860	9863	9866	9869	9871	9874	1	0	1	1	2	2
81	·9877	9880	9882	9885	9888	9890	9893	9895	9898	9900		0	1	1	2	2
82	·9903	9905	9907	9910	9912	9914	9917	9919	9921	9923	2	0	1	1	1	2
83	·9925	9928	9930	9932	9934	9936	9938	9940	9942	9943		0	1	1	1	2
84	·9945	9947	9949	9951	9952	9954	9956	9957	9959	9960	1	0	1	1	1	1
85	0·9962	9963	9965	9966	9968	9969	9971	9972	9973	9974		0	0	1	1	1
86	·9976	9977	9978	9979	9980	9981	9982	9983	9984	9985	1	0	0	1	1	1
87	·9986	9987	9988	9989	9990	9990	9991	9992	9993	9993						
88	·9994	9995	9995	9996	9996	9997	9997	9997	9998	9998		See Table below.				
89	0·9998	9999	9999	9999	9999	1·000	1·000	1·000	1·000	1·000						
90	1·0000															

## Sines of Angles near 90°

°	'	sine	°	'	sine	°
86	48	0·9985	86	·80	0·9993	87·7
86	54	0·9986	86	·91	0·9994	87·9
87	01	0·9987	87	·02	0·9995	88·0
87	08	0·9988	87	·13	0·9996	88·2
87	15	0·9989	87	·25	0·9997	88·4
87	22	0·9990	87	·37	0·9998	88·7
87	30	0·9991	87	·50	0·9999	89·0
87	38	0·9992	87	·63	1·0000	89·4
87	46		87	·78		90·0

The values in the centre columns represent the sines for all angles lying between the successive ranges shown in the outer columns. Thus  $\sin 87^\circ 20'$  is 0·9989. For inverse use, the best angle for a given sine is the one lying midway between the adjacent ranges; if the difference is odd, choose the angle nearer  $90^\circ$ . Thus if  $\sin x = 0·9988$ ,  $x = 87^\circ 12'$ .

For tabulated angles read the sine value in the half-line above; e.g.,  $\sin 87^\circ 38' = 0·9991$ .

x	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	$\Delta$	SUBTRACT				
	0°-0	0°-1	0°-2	0°-3	0°-4	0°-5	0°-6	0°-7	0°-8	0°-9		1'	2'	3'	4'	5'
0°	1.000	1.000	1.000	1.000	1.000	1.000	0.9999	0.9999	0.9999	0.9999		See table at foot of page.				
1	0.9998	9998	9998	9997	9997	9997	9996	9996	9995	9995						
2	.9994	9993	9993	9992	9991	9990	9990	9989	9988	9987						
3	.9986	9985	9984	9983	9982	9981	9980	9979	9978	9977	1	0	0	1	1	1
4	.9976	9974	9973	9972	9971	9969	9968	9966	9965	9963		0	0	1	1	1
5	0.9962	9960	9959	9957	9956	9954	9952	9951	9949	9947		0	1	1	1	1
6	.9945	9943	9942	9940	9938	9936	9934	9932	9930	9928	2	0	1	1	1	2
7	.9925	9923	9921	9919	9917	9914	9912	9910	9907	9905		0	1	1	1	2
8	.9903	9900	9898	9895	9893	9890	9888	9885	9882	9880		0	1	1	2	2
9	.9877	9874	9871	9869	9866	9863	9860	9857	9854	9851	3	0	1	1	2	2
10	0.9848	9845	9842	9839	9836	9833	9829	9826	9823	9820		1	1	2	2	3
11	.9816	9813	9810	9806	9803	9799	9796	9792	9789	9785		1	1	2	2	3
12	.9781	9778	9774	9770	9767	9763	9759	9755	9751	9748		1	1	2	2	3
13	.9744	9740	9736	9732	9728	9724	9720	9715	9711	9707	4	1	1	2	3	3
14	.9703	9699	9694	9690	9686	9681	9677	9673	9668	9664		1	1	2	3	4
15	0.9659	9655	9650	9646	9641	9636	9632	9627	9622	9617		1	2	2	3	4
16	.9613	9608	9603	9598	9593	9588	9583	9578	9573	9568	5	1	2	2	3	4
17	.9563	9558	9553	9548	9542	9537	9532	9527	9521	9516		1	2	3	3	4
18	.9511	9505	9500	9494	9489	9483	9478	9472	9466	9461		1	2	3	4	5
19	.9455	9449	9444	9438	9432	9426	9421	9415	9409	9403		1	2	3	4	5
20	0.9397	9391	9385	9379	9373	9367	9361	9354	9348	9342	6	1	2	3	4	5
21	.9336	9330	9323	9317	9311	9304	9298	9291	9285	9278		1	2	3	4	5
22	.9272	9265	9259	9252	9245	9239	9232	9225	9219	9212		1	2	3	4	6
23	.9205	9198	9191	9184	9178	9171	9164	9157	9150	9143	7	1	2	4	5	6
24	.9135	9128	9121	9114	9107	9100	9092	9085	9078	9070		1	2	4	5	6
25	0.9063	9056	9048	9041	9033	9026	9018	9011	9003	8996		1	3	4	5	6
26	.8988	8980	8973	8965	8957	8949	8942	8934	8926	8918		1	3	4	5	6
27	.8910	8902	8894	8886	8878	8870	8862	8854	8846	8838	8	1	3	4	5	7
28	.8829	8821	8813	8805	8796	8788	8780	8771	8763	8755		1	3	4	6	7
29	.8746	8738	8729	8721	8712	8704	8695	8686	8678	8669		1	3	4	6	7
30	0.8660	8652	8643	8634	8625	8616	8607	8599	8590	8581		1	3	4	6	7
31	.8572	8563	8554	8545	8536	8526	8517	8508	8499	8490	9	2	3	5	6	8
32	.8480	8471	8462	8453	8443	8434	8425	8415	8406	8396		2	3	5	6	8
33	.8387	8377	8368	8358	8348	8339	8329	8320	8310	8300		2	3	5	6	8
34	.8290	8281	8271	8261	8251	8241	8231	8221	8211	8202		2	3	5	7	8
35	0.8192	8181	8171	8161	8151	8141	8131	8121	8111	8100	10	2	3	5	7	8
36	.8090	8080	8070	8059	8049	8039	8028	8018	8007	7997		2	3	5	7	9
37	.7986	7976	7965	7955	7944	7934	7923	7912	7902	7891		2	4	5	7	9
38	.7880	7869	7859	7848	7837	7826	7815	7804	7793	7782	11	2	4	5	7	9
39	0.7771	7760	7749	7738	7727	7716	7705	7694	7683	7672		2	4	6	7	9

## Cosines of Small Angles

o	'	cosine	o	'	cosine	o	'	cosine	o	'	cosine
0	00	1.0000	0	0	0.0	2	13	0.9992	2	21	0.9992
0	34	0.9999	0	5	0.5	2	21	0.9991	2	36	0.9991
0	59	0.9998	0	9	0.9	2	29	0.9991	2	49	0.9990
1	16	0.9997	1	2	1.2	2	37	0.9990	2	62	0.9989
1	30	0.9997	1	5	1.5	2	44	0.9988	2	74	0.9988
1	43	0.9995	1	7	1.7	2	51	0.9987	2	86	0.9987
1	54	0.9994	1	9	1.9	2	58	0.9986	2	97	0.9986
2	03	0.9994	2	0	2.0	3	05	0.9986	3	08	0.9985
2	13	0.9993	2	2	2.2	3	11	0.9985	3	19	0.9985

This table is similar to that given for sines on page 15; thus

$$\cos 2^\circ 40' = 0.9989$$

$$0.9986 = \cos 3^\circ 2'$$

X	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	Δ	SUBTRACT				
	0°-0	0°-1	0°-2	0°-3	0°-4	0°-5	0°-6	0°-7	0°-8	0°-9		1'	2'	3'	4'	5'
40°	0-7660	7649	7638	7627	7615	7604	7593	7581	7570	7559	12	2	4	6	8	9
41	-7547	7536	7524	7513	7501	7490	7478	7466	7455	7443		2	4	6	8	10
42	-7431	7420	7408	7396	7385	7373	7361	7349	7337	7325		2	4	6	8	10
43	-7314	7302	7290	7278	7266	7254	7242	7230	7218	7206		2	4	6	8	10
44	-7193	7181	7169	7157	7145	7133	7120	7108	7096	7083	13	2	4	6	8	10
45	0-7071	7059	7046	7034	7022	7009	6997	6984	6972	6959		2	4	6	8	10
46	-6947	6934	6921	6909	6896	6884	6871	6858	6845	6833		2	4	6	8	11
47	-6820	6807	6794	6782	6769	6756	6743	6730	6717	6704		2	4	6	9	11
48	-6691	6678	6665	6652	6639	6626	6613	6600	6587	6574	14	2	4	7	9	11
49	-6561	6547	6534	6521	6508	6494	6481	6468	6455	6441		2	4	7	9	11
50	0-6428	6414	6401	6388	6374	6361	6347	6334	6320	6307		2	4	7	9	11
51	-6293	6280	6266	6252	6239	6225	6211	6198	6184	6170		2	5	7	9	11
52	-6157	6143	6129	6115	6101	6088	6074	6060	6046	6032	15	2	5	7	9	12
53	-6018	6004	5990	5976	5962	5948	5934	5920	5906	5892		2	5	7	9	12
54	-5878	5864	5850	5835	5821	5807	5793	5779	5764	5750		2	5	7	9	12
55	0-5736	5721	5707	5693	5678	5664	5650	5635	5621	5606		2	5	7	10	12
56	-5592	5577	5563	5548	5534	5519	5505	5490	5476	5461	16	2	5	7	10	12
57	-5446	5432	5417	5402	5388	5373	5358	5344	5329	5314		2	5	7	10	12
58	-5299	5284	5270	5255	5240	5225	5210	5195	5180	5165		2	5	7	10	12
59	-5150	5135	5120	5105	5090	5075	5060	5045	5030	5015		3	5	8	10	13
60	0-5000	4985	4970	4955	4939	4924	4909	4894	4879	4863	17	3	5	8	10	13
61	-4848	4833	4818	4802	4787	4772	4756	4741	4726	4710		3	5	8	10	13
62	-4695	4679	4664	4648	4633	4617	4602	4586	4571	4555		3	5	8	10	13
63	-4540	4524	4509	4493	4478	4462	4446	4431	4415	4399		3	5	8	10	13
64	-4384	4368	4352	4337	4321	4305	4289	4274	4258	4242	18	3	5	8	11	13
65	0-4226	4210	4195	4179	4163	4147	4131	4115	4099	4083		3	5	8	11	13
66	-4067	4051	4035	4019	4003	3987	3971	3955	3939	3923		3	5	8	11	13
67	-3907	3891	3875	3859	3843	3827	3811	3795	3778	3762		3	5	8	11	13
68	-3746	3730	3714	3697	3681	3665	3649	3633	3616	3600	19	3	5	8	11	14
69	-3584	3567	3551	3535	3518	3502	3486	3469	3453	3437		3	5	8	11	14
70	0-3420	3404	3387	3371	3355	3338	3322	3305	3289	3272		3	5	8	11	14
71	-3256	3239	3223	3206	3190	3173	3156	3140	3123	3107		3	6	8	11	14
72	-3090	3074	3057	3040	3024	3007	2990	2974	2957	2940	20	3	6	8	11	14
73	-2924	2907	2890	2874	2857	2840	2823	2807	2790	2773		3	6	8	11	14
74	-2756	2740	2723	2706	2689	2672	2656	2639	2622	2605		3	6	8	11	14
75	0-2588	2571	2554	2538	2521	2504	2487	2470	2453	2436		3	6	8	11	14
76	-2419	2402	2385	2368	2351	2334	2317	2300	2284	2267	21	3	6	8	11	14
77	-2250	2233	2215	2198	2181	2164	2147	2130	2113	2096		3	6	9	11	14
78	-2079	2062	2045	2028	2011	1994	1977	1959	1942	1925		3	6	9	11	14
79	-1908	1891	1874	1857	1840	1822	1805	1788	1771	1754		3	6	9	11	14
80	0-1736	1719	1702	1685	1668	1650	1633	1616	1599	1582	22	3	6	9	11	14
81	-1564	1547	1530	1513	1495	1478	1461	1444	1426	1409		3	6	9	11	14
82	-1392	1374	1357	1340	1323	1305	1288	1271	1253	1236		3	6	9	12	14
83	-1219	1201	1184	1167	1149	1132	1115	1097	1080	1063		3	6	9	12	14
84	-1045	1028	1011	0993	0976	0958	0941	0924	0906	0889	23	3	6	9	12	14
85	0-0872	0854	0837	0819	0802	0785	0767	0750	0732	0715		3	6	9	12	14
86	-0698	0680	0663	0645	0628	0610	0593	0576	0558	0541		3	6	9	12	15
87	-0523	0506	0488	0471	0454	0436	0419	0401	0384	0366		3	6	9	12	15
88	-0349	0332	0314	0297	0279	0262	0244	0227	0209	0192	24	3	6	9	12	15
89	0-0175	0157	0140	0122	0105	0087	0070	0052	0035	0017		3	6	9	12	15
90	0-0000															

X	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	Δ	ADD					
	0°-0	0°-1	0°-2	0°-3	0°-4	0°-5	0°-6	0°-7	0°-8	0°-9		1'	2'	3'	4'	5'	
0°	0-0000	0017	0035	0052	0070	0087	0105	0122	0140	0157	18	3	6	9	12	15	
1	-0175	0192	0209	0227	0244	0262	0279	0297	0314	0332		3	6	9	12	15	
2	-0349	0367	0384	0402	0419	0437	0454	0472	0489	0507		3	6	9	12	15	
3	-0524	0542	0559	0577	0594	0612	0629	0647	0664	0682		3	6	9	12	15	
4	-0699	0717	0734	0752	0769	0787	0805	0822	0840	0857		3	6	9	12	15	
5	0-0875	0892	0910	0928	0945	0963	0981	0998	1016	1033		3	6	9	12	15	
6	-1051	1069	1086	1104	1122	1139	1157	1175	1192	1210		3	6	9	12	15	
7	-1228	1246	1263	1281	1299	1317	1334	1352	1370	1388		3	6	9	12	15	
8	-1405	1423	1441	1459	1477	1495	1512	1530	1548	1566		3	6	9	12	15	
9	-1584	1602	1620	1638	1655	1673	1691	1709	1727	1745		3	6	9	12	15	
10	0-1763	1781	1799	1817	1835	1853	1871	1890	1908	1926		3	6	9	12	15	
11	-1944	1962	1980	1998	2016	2035	2053	2071	2089	2107		3	6	9	12	15	
12	-2126	2144	2162	2180	2199	2217	2235	2254	2272	2290		3	6	9	12	15	
13	-2309	2327	2345	2364	2382	2401	2419	2438	2456	2475		3	6	9	12	15	
14	-2493	2512	2530	2549	2568	2586	2605	2623	2642	2661		3	6	9	12	15	
15	0-2679	2698	2717	2736	2754	2773	2792	2811	2830	2849		3	6	9	13	16	
16	-2867	2886	2905	2924	2943	2962	2981	3000	3019	3038	19	3	6	10	13	16	
17	-3057	3076	3096	3115	3134	3153	3172	3191	3211	3230		3	6	10	13	16	
18	-3249	3269	3288	3307	3327	3346	3365	3385	3404	3424		3	6	10	13	16	
19	-3443	3463	3482	3502	3522	3541	3561	3581	3600	3620		3	7	10	13	16	
20	0-3640	3659	3679	3699	3719	3739	3759	3779	3799	3819	20	3	7	10	13	17	
21	-3839	3859	3879	3899	3919	3939	3959	3979	4000	4020		3	7	10	13	17	
22	-4040	4061	4081	4101	4122	4142	4163	4183	4204	4224		3	7	10	14	17	
23	-4245	4265	4286	4307	4327	4348	4369	4390	4411	4431		3	7	10	14	17	
24	-4452	4473	4494	4515	4536	4557	4578	4599	4621	4642	21	4	7	11	14	18	
25	0-4663	4684	4706	4727	4748	4770	4791	4813	4834	4856		4	7	11	14	18	
26	-4877	4899	4921	4942	4964	4986	5008	5029	5051	5073	22	4	7	11	15	18	
27	-5095	5117	5139	5161	5184	5206	5228	5250	5272	5295		4	7	11	15	18	
28	-5317	5340	5362	5384	5407	5430	5452	5475	5498	5520		4	8	11	15	19	
29	-5543	5566	5589	5612	5635	5658	5681	5704	5727	5750	23	4	8	12	15	19	
30	0-5774	5797	5820	5844	5867	5890	5914	5938	5961	5985		4	8	12	16	20	
31	-6009	6032	6056	6080	6104	6128	6152	6176	6200	6224	24	4	8	12	16	20	
32	-6249	6273	6297	6322	6346	6371	6395	6420	6445	6469		4	8	12	16	20	
33	-6494	6519	6544	6569	6594	6619	6644	6669	6694	6720	25	4	8	13	17	21	
34	-6745	6771	6796	6822	6847	6873	6899	6924	6950	6976		4	9	13	17	21	
35	0-7002	7028	7054	7080	7107	7133	7159	7186	7212	7239		4	9	13	17	22	
36	-7265	7292	7319	7346	7373	7400	7427	7454	7481	7508	26	5	9	14	18	23	
37	-7536	7563	7590	7618	7646	7673	7701	7729	7757	7785	27	5	9	14	19	23	
38	-7813	7841	7869	7898	7926	7954	7983	8012	8040	8069		5	10	14	19	24	
39	-8098	8127	8156	8185	8214	8243	8273	8302	8332	8361	29	5	10	15	19	24	
40	0-8391	8421	8451	8481	8511	8541	8571	8601	8632	8662		30	5	10	15	20	25
41	-8693	8724	8754	8785	8816	8847	8878	8910	8941	8972	31	5	10	16	21	26	
42	-9004	9036	9067	9099	9131	9163	9195	9228	9260	9293		32	5	11	16	21	27
43	-9325	9358	9391	9424	9457	9490	9523	9556	9590	9623	33	6	11	17	22	28	
44	-9657	9691	9725	9759	9793	9827	9861	9896	9930	9965	34	6	11	17	23	28	
45	1-0000	0035	0070	0105	0141	0176	0212	0247	0283	0319	36	6	12	18	24	30	
46	-0355	0392	0428	0464	0501	0538	0575	0612	0649	0686	37	6	12	18	25	31	
47	-0724	0761	0799	0837	0875	0913	0951	0990	1028	1067	38	6	13	19	25	32	
48	-1106	1145	1184	1224	1263	1303	1343	1383	1423	1463	40	7	13	20	27	33	
49	-1504	1544	1585	1626	1667	1708					41	7	14	20	27	34	
						1708	1750	1792	1833	1875	42	7	14	21	28	35	



X	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	$\Delta$	ADD				
	0°-0	0°-1	0°-2	0°-3	0°-4	0°-5	0°-6	0°-7	0°-8	0°-9		1'	2'	3'	4'	5'
50°	1-192	196	200	205	209	213	217	222	226	230		1	1	2	3	4
51	·235	239	244	248	253	257	262	266	271	275		1	2	2	3	4
52	·280	285	289	294	299	303	308	313	317	322		1	2	2	3	4
53	·327	332	337	342	347	351	356	361	366	371		1	2	2	3	4
54	·376	381	387	392	397	402	407	412	418	423	5	1	2	3	3	4
55	1-428	433	439	444	450	455	460	466	471	477		1	2	3	4	5
56	·483	488	494	499	505	511	517	522	528	534		1	2	3	4	5
57	·540	546	552	558	564	570	576	582	588	594	6	1	2	3	4	5
58	·600	607	613	619	625	632	638	645	651	658		1	2	3	4	5
59	·664	671	678	684	691	698	704	711	718	725		1	2	3	5	6
60	1-732	739	746	753	760	767	775	782	789	797	7	1	2	4	5	6
61	·804	811	819	827	834	842	849	857	865	873		1	3	4	5	6
62	·881	889	897	905	913	921	929	937	946	954	8	1	3	4	5	7
63	1-963	971	980	988	1-997	2-006	2-014	2-023	2-032	2-041		1	3	4	6	7
64	2-050	059	069	078	087	097	106	116	125	135	9	2	3	5	6	8
65	2-145	154	164	174	184	194	204	215	225	236	10	2	3	5	7	8
66	·246	257	267	278	289	300	311	322	333	344	11	2	4	6	7	9
67	·356	367	379	391	402	414	426	438	450	463	12	2	4	6	8	10
68	·475	488	500	513	526	539	552	565	578	592	13	2	4	6	9	11
69	·605	619	633	646	660	675	689	703	718	733	14	2	5	7	9	12
70	2-747	762	778	793	808	824	840	856	872	888	16	3	5	8	11	13
71	2-904	921	937	954	971	2-989	3-006	3-024	3-042	3-060	17	3	6	9	11	14
72	3-078	096	115	133	152	3-172	191	211	230	251	19	3	6	9	13	16
						172	191	211	230	251	20	3	7	10	13	17
73	·271	291	312	333	354	376	398	420	442	465	21	4	7	10	14	18
						376	398	420	442	465	22	4	7	11	15	18
74	·487	511	534	558	582	606	630	655	681	706	24	4	8	12	16	20
						606	630	655	681	706	25	4	8	13	17	21
75	3-732	758	785	812	839	867	895	923	952	981	27	4	9	14	18	22
						867	895	923	952	981	29	5	10	14	19	24
76	4-011	041	071	102	134	4-165	198	230	264	297	31	5	10	15	21	26
						165	198	230	264	297	33	6	11	17	22	28
77	4-331	366	402	437	474	511	548	586	625	665	36	6	12	18	24	30
						511	548	586	625	665	39	6	13	19	26	32
78	4-705	745	787	829	872	4-915	9-959	5-005	5-050	5-097	42	7	14	21	28	35
						4-915	4-959	5-005	5-050	5-097	46	8	15	23	31	38
79	5-145	193	242	292	343	5-396	449	503	558	614	50	8	17	25	33	42
						396	449	503	558	614	55	9	18	28	37	46
80	5-671	5-730	5-789	5-850	5-912	5-976	6-041	6-107	6-174	6-243		10	20	30	41	51
						5-976	6-041	6-107	6-174	6-243		11	23	34	45	56
81	6-314	6-386	6-460	6-535	6-612	6-691	6-772	6-855	6-940	7-026		13	25	38	50	63
						6-691	6-772	6-855	6-940	7-026		14	28	42	57	71
82	7-115	7-207	7-300	7-396	7-495	7-596	7-700	7-806	7-916	8-028						
83	8-144	8-264	8-386	8-513	8-643	8-777	8-915	9-058	9-205	9-357						
84	9-514	9-677	9-845	10-02	10-20	10-39	10-58	10-78	10-99	11-20						
85	11-43	11-66	11-91	12-16	12-43	12-71	13-00	13-30	13-62	13-95						
86	14-30	14-67	15-06	15-46	15-89	16-35	16-83	17-34	17-89	18-46						
87	19-08	19-74	20-45	21-20	22-02	22-90	23-86	24-90	26-03	27-27						
88	28-64	30-14	31-82	33-69	35-80	38-19	40-92	44-07	47-74	52-08						
89	57-29	63-66	71-62	81-85	95-49	114-6	143-2	191-0	286-5	573-0						
90	$\infty$															

Differences vary too rapidly for interpolation by P.P.s. See table on page 22.

P.P.s for differences exceeding 14, if not shown on this page, should be taken from the inside end cover of the book. For angles between 72° and 82° P.P.s based on actual differences should be used.

X	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	4	SUBTRACT				
	0°-0	0°-1	0°-2	0°-3	0°-4	0°-5	0°-6	0°-7	0°-8	0°-9		1'	2'	3'	4'	5'
0°	∞	573-0	286-5	191-0	143-2	114-6	95-49	81-85	71-62	63-66		Differences vary too rapidly for interpolation by P.P.s. See Table on page 22.				
1	57-29	52-08	47-74	44-07	40-92	38-19	35-80	33-69	31-82	30-14						
2	28-64	27-27	26-03	24-90	23-86	22-90	22-02	21-20	20-45	19-74						
3	19-08	18-46	17-89	17-34	16-83	16-35	15-89	15-46	15-06	14-67						
4	14-30	13-95	13-62	13-30	13-00	12-71	12-43	12-16	11-91	11-66						
5	11-43	11-20	10-99	10-78	10-58	10-39	10-20	10-02	9-845	9-677		14 28 42 57 71 13 25 38 50 63 11 23 34 45 56 10 20 30 41 51				
6	9-514	9-357	9-205	9-058	8-915	8-777	8-643	8-513	8-386	8-264						
7	8-144	8-028	7-916	7-806	7-700	7-596	7-495	7-396	7-300	7-207						
8	7-115	7-026	6-940	6-855	6-772	6-691	6-612	6-535	6-460	6-386						
9	6-314	6-243	6-174	6-107	6-041	5-976	5-912	5-850	5-789	5-730						
10	5-671	614	558	503	449	396	343	292	242	193	55	9	18	27	37	46
11	5-145	097	050	5-005	4-959	4-915	872	829	787	745	50	8	17	25	33	42
12	4-705	665	625	586	548	511	474	437	402	366	46	8	15	23	31	38
13	4-331	297	264	230	198	165	134	102	071	041	42	7	14	21	28	35
14	4-011	3-981	3-952	3-923	3-895	3-867	839	812	785	758	39	6	13	19	26	32
15	3-732	706	681	655	630	606	582	558	534	511	36	6	12	18	24	30
16	3-487	465	442	420	398	376	354	333	312	291	33	6	11	17	22	28
17	3-271	251	230	211	191	172	152	133	115	096	31	5	10	15	21	26
18	3-078	060	042	024	3-006	2-989	2-971	2-954	2-937	2-921	29	5	10	14	19	24
19	2-904	888	872	856	840	824	808	793	778	762	27	4	9	14	18	22
20	2-747	733	718	703	689	675	660	646	633	619	25	4	8	13	17	21
21	2-605	592	578	565	552	539	526	513	500	488	24	4	8	12	16	20
22	2-475	463	450	438	426	414	402	391	379	367	22	4	7	11	15	18
23	2-356	344	333	322	311	300	289	278	267	257	21	4	7	10	14	18
24	2-246	236	225	215	204	194	184	174	164	154	20	3	7	10	13	17
25	2-145	135	125	116	106	097	087	078	069	059	19	3	6	9	13	16
26	2-050	041	032	023	014	2-006	1-997	1-988	1-980	1-971	17	3	5	8	11	13
27	1-963	954	946	937	929	921	913	905	897	889	16	3	5	8	11	13
28	1-881	873	865	857	849	842	834	827	819	811	14	2	5	7	9	12
29	1-804	797	789	782	775	767	760	753	746	739	13	2	4	6	8	10
30	1-732	725	718	711	704	698	691	684	678	671	12	2	4	6	8	10
31	1-664	658	651	645	638	632	625	619	613	607	11	2	4	6	7	9
32	1-600	594	588	582	576	570	564	558	552	546	10	2	3	5	7	8
33	1-540	534	528	522	517	511	505	499	494	488	9	2	3	5	6	8
34	1-483	477	471	466	460	455	450	444	439	433	8	1	3	4	5	6
35	1-428	423	418	412	407	402	397	392	387	381	7	1	2	4	5	6
36	1-376	371	366	361	356	351	347	342	337	332	6	1	2	3	4	5
37	1-327	322	317	313	308	303	299	294	289	285	5	1	2	3	4	5
38	1-280	275	271	266	262	257	253	248	244	239	4	1	2	3	4	5
39	1-235	230	226	222	217	213	209	205	200	196	3	1	1	2	3	4

P.P.s for differences exceeding 14, if not shown on this page, should be taken from the inside end cover of the book. For angles between 72° and 82° P.P.s based on actual differences should be used.

x	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	Δ	SUBTRACT				
	0°·0	0°·1	0°·2	0°·3	0°·4	0°·5	0°·6	0°·7	0°·8	0°·9		1'	2'	3'	4'	5'
40°	1-1918	1875	1833	1792	1750	1708	1667	1626	1585	1544	41	7	14	21	28	34
41	-1504	1463	1423	1383	1343	1303	1263	1224	1184	1145	40	7	13	20	27	33
42	-1106	1067	1028	0990	0951	0913	0875	0837	0799	0761	38	6	13	19	25	32
43	-0724	0686	0649	0612	0575	0538	0501	0464	0428	0392	37	6	12	18	25	31
44	-0355	0319	0283	0247	0212	0176	0141	0105	0070	0035	36	6	12	18	24	30
45	1-0000	0-9965	9930	9896	9861	9827	9793	9759	9725	9691	34	6	11	17	23	29
46	0-9657	9623	9590	9556	9523	9490	9457	9424	9391	9358	33	6	11	17	22	28
47	-9325	9293	9260	9228	9195	9163	9131	9099	9067	9036	32	5	11	16	21	27
48	-9004	8972	8941	8910	8878	8847	8816	8785	8754	8724	31	5	10	16	21	26
49	-8693	8662	8632	8601	8571	8541	8511	8481	8451	8421	30	5	10	15	20	25
50	0-8391	8361	8332	8302	8273	8243	8214	8185	8156	8127	29	5	10	15	20	24
51	-8098	8069	8040	8012	7983	7954	7926	7898	7869	7841		5	10	14	19	24
52	-7813	7785	7757	7729	7701	7673	7646	7618	7590	7563	28	5	9	14	18	23
53	-7536	7508	7481	7454	7427	7400	7373	7346	7319	7292	27	5	9	14	18	23
54	-7265	7239	7212	7186	7159	7133	7107	7080	7054	7028	26	4	9	13	18	22
55	0-7002	6976	6950	6924	6899	6873	6847	6822	6796	6771		4	9	13	17	21
56	-6745	6720	6694	6669	6644	6619	6594	6569	6544	6519	25	4	8	13	17	21
57	-6494	6469	6445	6420	6395	6371	6346	6322	6297	6273		4	8	12	16	20
58	-6249	6224	6200	6176	6152	6128	6104	6080	6056	6032	24	4	8	12	16	20
59	-6009	5985	5961	5938	5914	5890	5867	5844	5820	5797		4	8	12	16	20
60	0-5774	5750	5727	5704	5681	5658	5635	5612	5589	5566	23	4	8	12	15	19
61	-5543	5520	5498	5475	5452	5430	5407	5384	5362	5340		4	8	11	15	19
62	-5317	5295	5272	5250	5228	5206	5184	5161	5139	5117		4	7	11	15	18
63	-5095	5073	5051	5029	5008	4986	4964	4942	4921	4899	22	4	7	11	15	18
64	-4877	4856	4834	4813	4791	4770	4748	4727	4706	4684		4	7	11	14	18
65	0-4663	4642	4621	4599	4578	4557	4536	4515	4494	4473	21	4	7	11	14	18
66	-4452	4431	4411	4390	4369	4348	4327	4307	4286	4265		3	7	10	14	17
67	-4245	4224	4204	4183	4163	4142	4122	4101	4081	4061		3	7	10	14	17
68	-4040	4020	4000	3979	3959	3939	3919	3899	3879	3859		3	7	10	13	17
69	-3839	3819	3799	3779	3759	3739	3719	3699	3679	3659	20	3	7	10	13	17
70	0-3640	3620	3600	3581	3561	3541	3522	3502	3482	3463		3	7	10	13	16
71	-3443	3424	3404	3385	3365	3346	3327	3307	3288	3269		3	6	10	13	16
72	-3249	3230	3211	3191	3172	3153	3134	3115	3096	3076		3	6	10	13	16
73	-3057	3038	3019	3000	2981	2962	2943	2924	2905	2886	19	3	6	10	13	16
74	-2867	2849	2830	2811	2792	2773	2754	2736	2717	2698		3	6	9	13	16
75	0-2679	2661	2642	2623	2605	2586	2568	2549	2530	2512		3	6	9	12	15
76	-2493	2475	2456	2438	2419	2401	2382	2364	2345	2327		3	6	9	12	15
77	-2309	2290	2272	2254	2235	2217	2199	2180	2162	2144		3	6	9	12	15
78	-2126	2107	2089	2071	2053	2035	2016	1998	1980	1962		3	6	9	12	15
79	-1944	1926	1908	1890	1871	1853	1835	1817	1799	1781		3	6	9	12	15
80	0-1763	1745	1727	1709	1691	1673	1655	1638	1620	1602		3	6	9	12	15
81	-1584	1566	1548	1530	1512	1495	1477	1459	1441	1423		3	6	9	12	15
82	-1405	1388	1370	1352	1334	1317	1299	1281	1263	1246		3	6	9	12	15
83	-1228	1210	1192	1175	1157	1139	1122	1104	1086	1069		3	6	9	12	15
84	-1051	1033	1016	0998	0981	0963	0945	0928	0910	0892		3	6	9	12	15
85	0-0875	0857	0840	0822	0805	0787	0769	0752	0734	0717		3	6	9	12	15
86	-0699	0682	0664	0647	0629	0612	0594	0577	0559	0542		3	6	9	12	15
87	-0524	0507	0489	0472	0454	0437	0419	0402	0384	0367		3	6	9	12	15
88	-0349	0332	0314	0297	0279	0262	0244	0227	0209	0192		3	6	9	12	15
89	-0175	0157	0140	0122	0105	0087	0070	0052	0035	0017	18	3	6	9	12	15
90	0-0000															

X	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	
°												°
82 00	7-115	130	146	161	176	191	207	222	238	253	269	7 50
82 10	7-269	284	300	316	332	348	364	380	396	412	429	7 40
82 20	7-429	445	462	478	495	511	528	545	562	579	596	7 30
82 30	7-596	613	630	647	665	682	700	717	735	753	770	7 20
82 40	7-770	788	806	824	842	861	879	897	916	934	7-953	7 10
82 50	7-953	7-972	7-991	8-009	8-028	8-048	8-067	8-086	8-105	8-125	8-144	7 00
83 00	8-144	164	184	204	223	243	264	284	304	324	345	6 50
83 10	8-345	366	386	407	428	449	470	491	513	534	556	6 40
83 20	8-556	577	599	621	643	665	687	709	732	754	8-777	6 30
83 30	8-777	800	823	846	869	892	915	939	962	9-886	9-010	6 20
83 40	9-010	034	058	082	106	131	156	180	205	230	255	6 10
83 50	9-255	281	306	332	357	383	409	435	461	488	514	6 00
84 00	9-514	541	568	595	622	649	677	704	732	760	9-788	5 50
84 10	9-788	816	845	873	902	931	960	9-989	10-019	10-048	10-078	5 40
84 20	10-078	108	138	168	199	229	260	291	322	354	385	5 30
84 30	10-39	10-42	10-45	10-48	10-51	10-55	10-58	10-61	10-64	10-68	10-71	5 20
84 40	10-71	10-75	10-78	10-81	10-85	10-88	10-92	10-95	10-99	11-02	11-06	5 10
84 50	11-06	11-10	11-13	11-17	11-20	11-24	11-28	11-32	11-35	11-39	11-43	5 00
85 00	11-43	11-47	11-51	11-55	11-59	11-62	11-66	11-70	11-74	11-79	11-83	4 50
85 10	11-83	11-87	11-91	11-95	11-99	12-03	12-08	12-12	12-16	12-21	12-25	4 40
85 20	12-25	12-29	12-34	12-38	12-43	12-47	12-52	12-57	12-61	12-66	12-71	4 30
85 30	12-71	12-75	12-80	12-85	12-90	12-95	13-00	13-05	13-10	13-15	13-20	4 20
85 40	13-20	13-25	13-30	13-35	13-40	13-46	13-51	13-56	13-62	13-67	13-73	4 10
85 50	13-73	13-78	13-84	13-89	13-95	14-01	14-07	14-12	14-18	14-24	14-30	4 00
86 00	14-30	14-36	14-42	14-48	14-54	14-61	14-67	14-73	14-80	14-86	14-92	3 50
86 10	14-92	14-99	15-06	15-12	15-19	15-26	15-33	15-39	15-46	15-53	15-60	3 40
86 20	15-60	15-68	15-75	15-82	15-89	15-97	16-04	16-12	16-20	16-27	16-35	3 30
86 30	16-35	16-43	16-51	16-59	16-67	16-75	16-83	16-92	17-00	17-08	17-17	3 20
86 40	17-17	17-26	17-34	17-43	17-52	17-61	17-70	17-79	17-89	17-98	18-07	3 10
86 50	18-07	18-17	18-27	18-37	18-46	18-56	18-67	18-77	18-87	18-98	19-08	3 00
87 00	19-08	19-19	19-30	19-41	19-52	19-63	19-74	19-85	19-97	20-09	20-21	2 50
87 10	20-21	20-33	20-45	20-57	20-69	20-82	20-95	21-07	21-20	21-34	21-47	2 40
87 20	21-47	21-61	21-74	21-88	22-02	22-16	22-31	22-45	22-60	22-75	22-90	2 30
87 30	22-90	23-06	23-21	23-37	23-53	23-69	23-86	24-03	24-20	24-37	24-54	2 20
87 40	24-54	24-72	24-90	25-08	25-26	25-45	25-64	25-83	26-03	26-23	26-43	2 10
87 50	26-43	26-64	26-84	27-06	27-27	27-49	27-71	27-94	28-17	28-40	28-64	2 00
88 00	28-64	28-88	29-12	29-37	29-62	29-88	30-14	30-41	30-68	30-96	31-24	1 50
88 10	31-24	31-53	31-82	32-12	32-42	32-73	33-05	33-37	33-69	34-03	34-37	1 40
88 20	34-37	34-72	35-07	35-43	35-80	36-18	36-56	36-96	37-36	37-77	38-19	1 30
88 30	38-19	38-62	39-06	39-51	39-97	40-44	40-92	41-41	41-92	42-43	42-96	1 20
88 40	42-96	43-51	44-07	44-64	45-23	45-83	46-45	47-09	47-74	48-41	49-10	1 10
88 50	49-10	49-82	50-55	51-30	52-08	52-88	53-71	54-56	55-44	56-35	57-29	1 00
89 00	57-29	58-26	59-27	60-31	61-38	62-50	63-66	64-86	66-11	67-40	68-75	0 50
89 10	68-75	70-15	71-62	73-14	74-73	76-39	78-13	79-94	81-85	83-84	85-94	0 40
89 20	85-94	88-14	90-46	92-91	95-49	98-22	101-1	104-2	107-4	110-9	114-6	0 30
89 30	114-6	118-5	122-8	127-3	132-2	137-5	143-2	149-5	156-3	163-7	171-9	0 20
89 40	171-9	180-9	191-0	202-2	214-9	229-2	245-6	264-4	286-5	312-5	343-8	0 10
89 50	343-8	382-0	429-7	491-1	573-0	687-5	859-4	1146	1719	3438	∞	0 00
	10'	9'	8'	7'	6'	5'	4'	3'	2'	1'	0'	X

X  
↓  
cot X  
0 3438 ∞  
50 3437 68-14  
113 3436 30-31  
152 3436 2-58  
182 3435 18-78  
209 3434 16-41  
232 3433 14-76  
253 3432 13-53  
273 3431 12-56

o  
0-00 57-30 ∞  
0-36 57-29 156-6  
1-36 57-28 42-09  
1-88 57-27 30-31  
2-30 57-26 24-90  
2-64 57-25 21-63  
2-95 57-24 19-38  
3-23 57-24 17-71  
3-48 57-23 16-41  
3-72 57-21 15-36  
3-94 57-20 14-49  
4-16 57-19 13-75  
4-36 57-18 13-11  
4-55 57-17 12-56  
4-74 57-16 12-06

rad.  
-0000 1-0000 ∞  
-0122 0-9999 81-65  
-0212 0-9998 47-14  
-0273 0-9997 36-51  
-0324 0-9996 30-86  
-0367 0-9995 27-21  
-0406 0-9994 24-61  
-0441 0-9993 22-64  
-0474 0-9992 21-07  
-0504 0-9991 19-79  
-0533 0-9990 18-72  
-0561 0-9989 17-81  
-0587 0-9988 17-01  
-0612 0-9987 16-32  
-0636 0-9986 15-70  
-0659 0-9985 15-15  
-0681 0-9984 14-65  
-0703 0-9983 14-20  
-0724 0-9982 13-78

cot X =  $\frac{\tau}{X}$   
X =  $\frac{\tau}{\cot X}$

where  $\tau$  is taken from the table in the same units as X

Example.  
Find cot X when  
X = 30-77

$\tau$  for 30-77 = 57-21  
 $\frac{\tau}{X} = \frac{57-21}{3-77} = 15-18$   
i.e., cot X = 15-18

## NATURAL COTANGENTS, 0° to 8°

(Read up and from right to left)



x	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	
82 00	7-185	200	215	230	245	260	276	291	306	322	337	7 50
82 10	7-337	353	368	384	400	416	431	447	463	480	496	7 40
82 20	7-496	512	528	545	561	578	594	611	628	644	661	7 30
82 30	7-661	678	695	712	730	747	764	782	799	817	834	7 20
82 40	7-834	852	870	888	906	924	942	960	979	997	1016	7 10
82 50	8-016	034	053	072	091	109	128	148	167	186	206	7 00
83 00	8-206	225	245	264	284	304	324	344	364	384	405	6 50
83 10	8-405	425	446	466	487	508	529	550	571	592	614	6 40
83 20	8-614	635	657	679	700	722	744	767	789	811	834	6 30
83 30	8-834	856	879	902	925	948	971	8-994	9-018	9-041	9-065	6 20
83 40	9-065	089	113	137	161	186	210	235	259	284	309	6 10
83 50	9-309	334	360	385	411	436	462	488	514	540	567	6 00
84 00	9-567	593	620	647	674	701	728	756	783	811	839	5 50
84 10	9-839	867	895	924	952	9-981	10-010	10-039	10-068	10-098	10-128	5 40
84 20	10-128	157	187	217	248	278	309	340	371	402	433	5 30
84 30	10-43	10-47	10-50	10-53	10-56	10-59	10-63	10-66	10-69	10-73	10-76	5 20
84 40	10-76	10-79	10-83	10-86	10-89	10-93	10-96	11-00	11-03	11-07	11-10	5 10
84 50	11-10	11-14	11-18	11-21	11-25	11-29	11-32	11-36	11-40	11-44	11-47	5 00
85 00	11-47	11-51	11-55	11-59	11-63	11-67	11-71	11-75	11-79	11-83	11-87	4 50
85 10	11-87	11-91	11-95	11-99	12-03	12-08	12-12	12-16	12-20	12-25	12-29	4 40
85 20	12-29	12-34	12-38	12-42	12-47	12-51	12-56	12-61	12-65	12-70	12-75	4 30
85 30	12-75	12-79	12-84	12-89	12-94	12-99	13-03	13-08	13-13	13-18	13-23	4 20
85 40	13-23	13-29	13-34	13-39	13-44	13-49	13-55	13-60	13-65	13-71	13-76	4 10
85 50	13-76	13-82	13-87	13-93	13-99	14-04	14-10	14-16	14-22	14-28	14-34	4 00
86 00	14-34	14-40	14-46	14-52	14-58	14-64	14-70	14-77	14-83	14-89	14-96	3 50
86 10	14-96	15-02	15-09	15-16	15-22	15-29	15-36	15-43	15-50	15-57	15-54	3 40
86 20	15-54	15-71	15-78	15-85	15-93	16-00	16-07	16-15	16-23	16-30	16-38	3 30
86 30	16-38	16-46	16-54	16-62	16-70	16-78	16-86	16-94	17-03	17-11	17-20	3 20
86 40	17-20	17-28	17-37	17-46	17-55	17-64	17-73	17-82	17-91	18-01	18-10	3 10
86 50	18-10	18-20	18-30	18-39	18-49	18-59	18-69	18-79	18-90	19-00	19-11	3 00
87 00	19-11	19-21	19-32	19-43	19-54	19-65	19-77	19-88	20-00	20-11	20-23	2 50
87 10	20-23	20-35	20-47	20-59	20-72	20-84	20-97	21-10	21-23	21-36	21-49	2 40
87 20	21-49	21-63	21-77	21-90	22-04	22-19	22-33	22-48	22-62	22-77	22-93	2 30
87 30	22-93	23-08	23-24	23-39	23-55	23-72	23-88	24-05	24-22	24-39	24-56	2 20
87 40	24-56	24-74	24-92	25-10	25-28	25-47	25-66	25-85	26-05	26-25	26-45	2 10
87 50	26-45	26-66	26-86	27-08	27-29	27-51	27-73	27-96	28-18	28-42	28-65	2 00
88 00	28-65	28-89	29-14	29-39	29-64	29-90	30-16	30-43	30-70	30-98	31-26	1 50
88 10	31-26	31-54	31-84	32-13	32-44	32-75	33-06	33-38	33-71	34-04	34-38	1 40
88 20	34-38	34-73	35-08	35-45	35-81	36-19	36-58	36-97	37-37	37-78	38-20	1 30
88 30	38-20	38-63	39-07	39-52	39-98	40-45	40-93	41-42	41-93	42-45	42-98	1 20
88 40	42-98	43-52	44-08	44-65	45-24	45-84	46-46	47-10	47-75	48-42	49-11	1 10
88 50	49-11	49-83	50-56	51-31	52-09	52-89	53-72	54-57	55-45	56-36	57-30	1 00
89 00	57-30	58-27	59-27	60-31	61-39	62-51	63-66	64-87	66-11	67-41	68-76	0 50
89 10	68-76	70-16	71-62	73-15	74-74	76-40	78-13	79-95	81-85	83-85	85-95	0 40
89 20	85-95	88-15	90-47	92-91	95-49	98-22	101-1	104-2	107-4	110-9	114-6	0 30
89 30	114-6	118-5	122-8	127-3	132-2	137-5	143-2	149-5	156-3	163-7	171-9	0 20
89 40	171-9	180-9	191-0	202-2	214-9	229-2	245-6	264-4	286-5	312-5	343-8	0 10
89 50	343-8	382-0	429-7	491-1	573-0	687-5	859-4	1146	1719	3438	∞	0 00
	10'	9'	8'	7'	6'	5'	4'	3'	2'	1'	0'	x

secant	o	'
0 00	1-0000	90 00
0 34	-0001	89 26
0 59	-0002	89 01
1 16	-0002	88 44
1 30	-0003	88 30
1 43	-0004	88 17
1 53	-0005	88 07
2 10	-0007	87 57
2 13	-0008	87 47
2 21	-0009	87 39
2 29	-0010	87 31
2 37	-0011	87 23
2 44	-0011	87 16
2 51	-0012	87 09
2 58	-0013	87 02
3 05	-0014	86 55

↖ cosecant

x	σ	cosc	x
0	3438	∞	
124	3439	27-59	
190	3439	18-10	
238	3440	14-45	
278	3441	12-38	
312	3442	11-00	
0	0-00	57-30	∞
1-78	57-31	32-19	
2-57	57-32	22-30	
3-16	57-33	18-10	
3-67	57-34	15-62	
4-11	57-34	13-95	
4-51	57-35	12-72	
4-87	57-36	11-77	
5-21	57-37	11-00	

rad.	secant	o	'
0-0000	1-0000	∞	
-0-0173	-0001	57-74	
-0-0300	-0002	33-34	
-0-0387	-0003	25-83	
-0-0458	-0004	21-84	
-0-0519	-0005	19-26	
-0-0574	-0006	17-43	
-0-0624	-0007	16-03	
-0-0670	-0007	14-93	
-0-0713	-0008	14-02	
-0-0754	-0009	13-27	
-0-0793	-0010	12-62	
-0-0830	-0011	12-06	

cosc x =  $\frac{\sigma}{x}$   
 $x = \frac{\sigma}{\text{cosc } x}$   
 where  $\sigma$  is taken from the table in the same units as x

Example.  
 Find x in radians  
 when cosc x = 12-34  
 $\sigma$  for 12-34 = 1-0011  
 $\therefore x = \frac{1-0011}{12-34}$   
 $= 0-0811$

## NATURAL COSECANTS, 0° to 8°

(Read up and from right to left)

x	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	Δ	ADD				
	0°·0	0°·1	0°·2	0°·3	0°·4	0°·5	0°·6	0°·7	0°·8	0°·9		1'	2'	3'	4'	5'
0°	1·0000	0000	0000	0000	0000	0000	0001	0001	0001			See small Table p. 23, top right.				
1	·0002	0002	0002	0003	0003	0003	0004	0004	0005	0006						
2	·0006	0007	0007	0008	0009	0010	0010	0011	0012	0013						
3	·0014	0015	0016	0017	0018	0019	0020	0021	0022	0023	1					
4	·0024	0026	0027	0028	0030	0031	0032	0034	0035	0037		0	0	0	1	1
												0	0	1	1	1
5	1·0038	0040	0041	0043	0045	0046	0048	0050	0051	0053		0	1	1	1	1
6	·0055	0057	0059	0061	0063	0065	0067	0069	0071	0073	2	0	1	1	1	2
7	·0075	0077	0079	0082	0084	0086	0089	0091	0093	0096		0	1	1	2	2
8	·0098	0101	0103	0106	0108	0111	0114	0116	0119	0122		0	1	1	2	2
9	·0125	0127	0130	0133	0136	0139	0142	0145	0148	0151	3	0	1	1	2	2
10	1·0154	0157	0161	0164	0167	0170	0174	0177	0180	0184		1	1	2	2	3
11	·0187	0191	0194	0198	0201	0205	0209	0212	0216	0220		1	1	2	2	3
12	·0223	0227	0231	0235	0239	0243	0247	0251	0255	0259	4	1	1	2	3	3
13	·0263	0267	0271	0276	0280	0284	0288	0293	0297	0302		1	1	2	3	4
14	·0306	0311	0315	0320	0324	0329	0334	0338	0343	0348		1	2	2	3	4
15	1·0353	0358	0363	0367	0372	0377	0382	0388	0393	0398	5	1	2	2	3	4
16	·0403	0408	0413	0419	0424	0429	0435	0440	0446	0451		1	2	3	4	4
17	·0457	0463	0468	0474	0480	0485	0491	0497	0503	0509		1	2	3	4	5
18	·0515	0521	0527	0533	0539	0545	0551	0557	0564	0570	6	1	2	3	4	5
19	·0576	0583	0589	0595	0602	0608	0615	0622	0628	0635		1	2	3	4	6
20	1·0642	0649	0655	0662	0669	0676	0683	0690	0697	0704		1	2	3	5	6
21	·0711	0719	0726	0733	0740	0748	0755	0763	0770	0778	7	1	2	4	5	6
22	·0785	0793	0801	0808	0816	0824	0832	0840	0848	0856		1	3	4	5	7
23	·0864	0872	0880	0888	0896	0904	0913	0921	0929	0938	8	1	3	4	5	7
24	·0946	0955	0963	0972	0981	0989	0998	1007	1016	1025		1	3	4	6	7
25	1·1034	1043	1052	1061	1070	1079	1089	1098	1107	1117	9	2	3	5	6	8
26	·1126	1136	1145	1155	1164	1174	1184	1194	1203	1213		2	3	5	6	8
27	·1223	1233	1243	1253	1264	1274	1284	1294	1305	1315	10	2	3	5	7	8
28	·1326	1336	1347	1357	1368	1379	1390	1401	1412	1423		2	4	5	7	9
29	·1434	1445	1456	1467	1478	1490	1501	1512	1524	1535	11	2	4	6	7	9
30	1·1547	1559	1570	1582	1594	1606	1618	1630	1642	1654	12	2	4	6	8	10
31	·1666	1679	1691	1703	1716	1728	1741	1753	1766	1779		2	4	6	8	10
32	·1792	1805	1818	1831	1844	1857	1870	1883	1897	1910	13	2	4	7	9	11
33	·1924	1937	1951	1964	1978	1992	2006	2020	2034	2048	14	2	5	7	9	12
34	·2062	2076	2091	2105	2120	2134	2149	2163	2178	2193		2	5	7	10	12
35	1·2208	2223	2238	2253	2268	2283	2299	2314	2329	2345	15	3	5	8	10	13
36	·2361	2376	2392	2408	2424	2440	2456	2472	2489	2505	16	3	5	8	11	13
37	·2521	2538	2554	2571	2588	2605	2622	2639	2656	2673	17	3	6	8	11	14
38	·2690	2708	2725	2742	2760	2778	2796	2813	2831	2849	18	3	6	9	12	15
39	·2868	2886	2904	2923	2941	2960	2978	2997	3016	3035	19	3	6	9	13	16
40	1·3054	3073	3093	3112	3131	3151	3171	3190	3210	3230	20	3	7	10	13	17
41	·3250	3270	3291	3311	3331	3352	3373	3393	3414	3435	21	3	7	10	14	17
42	·3456	3478	3499	3520	3542	3563	3585	3607	3629	3651	22	4	7	11	15	18
43	·3673	3696	3718	3741	3763	3786	3809	3832	3855	3878	23	4	8	11	15	19
44	·3902	3925	3949	3972	3996	4020	4044	4069	4093	4118	24	4	8	12	16	20
45	1·4142	4167	4192	4217	4242	4267	4293	4318	4344	4370	25	4	8	13	17	21
46	·4396	4422	4448	4474	4501	4527	4554	4581	4608	4635	26	4	9	13	18	22
47	·4663	4690	4718	4746	4774	4802	4830	4859	4887	4916	27	5	9	14	19	23
48	·4945	4974	5003	5032	5062	5092	5121	5151	5182	5212	28	5	10	15	20	25
49	1·5243	5273	5304	5335	5366	5398	5429	5461	5493	5525	29	5	10	16	21	26

X	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	Δ	ADD				
	0°·0	0°·1	0°·2	0°·3	0°·4	0°·5	0°·6	0°·7	0°·8	0°·9		1'	2'	3'	4'	5'
50°	1·556	559	562	566	569	572	575	579	582	586	3	1	1	2	2	3
51	·589	592	596	599	603	606	610	613	617	621		1	1	2	2	3
52	·624	628	632	635	639	643	646	650	654	658		1	1	2	3	3
53	·662	666	669	673	677	681	685	689	693	697		1	1	2	3	3
54	·701	705	710	714	718	722	726	731	735	739	4	1	1	2	3	3
55	1·743	748	752	757	761	766	770	775	779	784		1	2	2	3	3
56	·788	793	798	802	807	812	817	821	826	831		1	2	2	3	4
57	·836	841	846	851	856	861	866	871	877	882	5	1	2	3	3	4
58	·887	892	898	903	908	914	919	925	930	936		1	2	3	4	5
59	·942	947	953	959	964	970	976	982	988	1·994	6	1	2	3	4	5
60	2·000	006	012	018	025	031	037	043	050	056		1	2	3	4	5
61	·063	069	076	082	089	096	103	109	116	123		1	2	3	4	6
62	·130	137	144	151	158	166	173	180	188	195	7	1	2	4	5	6
63	·203	210	218	226	233	241	249	257	265	273	8	1	3	4	5	7
64	·281	289	298	306	314	323	331	340	349	357		1	3	4	6	7
65	2·366	375	384	393	402	411	421	430	439	449	9	2	3	5	6	8
66	·459	468	478	488	498	508	518	528	538	549	10	2	3	5	7	8
67	·559	570	581	591	602	613	624	635	647	658	11	2	4	6	7	9
68	·669	681	693	705	716	729	741	753	765	778	12	2	4	6	8	10
69	·790	803	816	829	842	855	869	882	896	910	13	2	4	7	9	11
70	2·924	938	952	967	981	2·996	3·011	3·026	3·041	3·056	15	2	5	7	10	12
71	3·072	087	103	119	135	3·152	168	185	202	219	16	3	5	8	11	13
72	·236	254	271	289	307	326					18	3	6	9	12	15
						326	344	363	382	401	19	3	6	9	13	16
73	·420	440	460	480	500	521					20	3	7	10	13	17
						521	542	563	584	606	21	4	7	11	14	18
74	·628	650	673	695	719	742					23	4	8	11	15	19
						742	766	790	814	839	24	4	8	12	16	20
75	3·864	889	915	941	967	3·994					26	4	9	13	17	22
						3·994	4·021	4·049	4·077	4·105	28	5	9	14	19	23
76	4·134	163	192	222	253	4·284					30	5	10	15	20	25
						284	315	347	379	412	32	5	11	16	21	27
77	4·445	479	514	549	584	4·620					35	6	12	18	23	29
						620	657	694	732	771	38	6	13	19	25	32
78	4·810	850	890	931	4·973	5·016					41	7	14	21	27	34
						5·016	059	103	148	194	45	8	15	22	30	38
79	5·241	288	337	386	436	487					49	8	16	25	33	41
						487	540	593	647	702	54	9	18	27	36	45
80	5·759	5·816	5·875	5·935	5·996	6·059					60	10	20	30	40	50
						6·059	6·123	6·188	6·255	6·323	67	11	22	33	45	56
81	6·392	6·464	6·537	6·611	6·687	6·765					75	12	25	37	50	62
						6·765	6·845	6·927	7·011	7·097	84	14	28	42	56	70
82	7·185	7·276	7·368	7·463	7·561	7·661	7·764	7·870	7·979	8·091						
83	8·206	8·324	8·446	8·571	8·700	8·834	8·971	9·113	9·259	9·411						
84	9·567	9·728	9·895	10·07	10·25	10·43	10·63	10·83	11·03	11·25						
85	11·47	11·71	11·95	12·20	12·47	12·75	13·03	13·34	13·65	13·99						
86	14·34	14·70	15·09	15·50	15·93	16·38	16·86	17·37	17·91	18·49						
87	19·11	19·77	20·47	21·23	22·04	22·93	23·88	24·92	26·05	27·29						
88	28·65	30·16	31·84	33·71	35·81	38·20	40·93	44·08	47·75	52·09						
89	57·30	63·66	71·62	81·85	95·49	114·6	143·2	191·0	286·5	573·0						
90	∞															

Differences vary too rapidly for interpolation by P.P.s. See Table on page 23.

P.P.s for differences exceeding 16, if not shown on this page, should be taken from the inside end cover of the book. For angles between 72° and 82° P.P.s based on actual differences should be used.

X	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	$\Delta$	SUBTRACT				
	0°·0	0°·1	0°·2	0°·3	0°·4	0°·5	0°·6	0°·7	0°·8	0°·9		1'	2'	3'	4'	5'
0°	$\infty$	573·0	286·5	191·0	143·2	114·6	95·49	81·85	71·62	63·66		Differences vary too rapidly for interpolation by P.P.s. See Table on page 23.				
1	57·30	52·09	47·75	44·08	40·93	38·20	35·81	33·71	31·84	30·16						
2	28·65	27·29	26·05	24·92	23·88	22·93	22·04	21·23	20·47	19·77						
3	19·11	18·49	17·91	17·37	16·86	16·38	15·93	15·50	15·09	14·70						
4	14·34	13·99	13·65	13·34	13·03	12·75	12·47	12·20	11·95	11·71		84 14 28 42 56 70 75 12 25 37 50 62 67 11 22 33 45 56 60 10 20 30 40 50				
5	11·47	11·25	11·03	10·83	10·63	10·43	10·25	10·07	9·895	9·728						
6	9·567	9·411	9·259	9·113	8·971	8·834	8·700	8·571	8·446	8·324						
7	8·206	8·091	7·979	7·870	7·764	7·661	7·561	7·463	7·368	7·276						
8	7·185	7·097	7·011	6·927	6·845	6·765	6·687	6·611	6·537	6·464	84	14 28 42 56 70 75 12 25 37 50 62 67 11 22 33 45 56 60 10 20 30 40 50				
9	6·392	6·323	6·255	6·188	6·123	6·059	5·996	5·935	5·875	5·816	75					
10	5·759	702	647	593	540	487	436	386	337	288	67					
11	5·241	194	148	103	059	5·016	4·973	4·931	4·890	4·850	60					
12	4·810	771	732	694	657	4·620	584	549	514	479	54	9 18 27 36 45 8 16 25 33 41 45 8 15 22 30 38 41 7 14 21 27 34 38 6 13 19 25 32 35 6 12 18 23 29 32 5 11 16 21 27 30 5 10 15 20 25 28 5 9 14 19 23 26 4 9 13 17 22				
13	4·445	412	379	347	315	284	253	222	192	163	49					
14	4·134	105	077	049	4·021	3·994	967	941	915	889	45					
15	3·864	839	814	790	766	742	719	695	673	650	41					
16	·628	606	584	563	542	521	500	480	460	440	38	4 8 12 16 20 3 6 9 13 16 2 3 5 8 11 13 1 2 4 6 8 10				
17	·420	401	382	363	344	326	307	289	271	254	35					
18	·236	219	202	185	168	152	135	119	103	087	32					
19	3·072	056	041	026	3·011	2·996	2·981	2·967	2·952	2·938	30					
20	2·924	910	896	882	869	855	842	829	816	803	28	2 4 7 9 11 2 4 6 8 10 2 4 5 7 9 2 3 5 7 8				
21	·790	778	765	753	741	729	716	705	693	681	26					
22	·669	658	647	635	624	613	602	591	581	570	24					
23	·559	549	538	528	518	508	498	488	478	468	21					
24	·459	449	439	430	421	411	402	393	384	375	20	1 3 4 6 7 1 3 4 5 7 1 2 4 5 6 1 2 3 4 6				
25	2·366	357	349	340	331	323	314	306	298	289	19					
26	·281	273	265	257	249	241	233	226	218	210	18					
27	·203	195	188	180	173	166	158	151	144	137	17					
28	·130	123	116	109	103	096	089	082	076	069	16	1 2 3 4 5 1 2 3 3 4 1 2 2 3 3 1 1 2 2 3				
29	·063	056	050	043	037	031	025	018	012	006	15					
30	2·000	1·994	1·988	1·982	1·976	1·970	1·964	1·959	1·953	1·947	14					
31	1·942	936	930	925	919	914	908	903	898	892	13	1 2 3 4 5 1 2 3 3 4 1 2 2 3 4 1 2 2 3 3				
32	·887	882	877	871	866	861	856	851	846	841	12					
33	·836	831	826	821	817	812	807	802	798	793	11					
34	·788	784	779	775	770	766	761	757	752	748	10					
35	1·743	739	735	731	726	722	718	714	710	705	9	1 1 2 3 3 1 1 2 3 3 1 1 2 3 3 1 1 2 2 3				
36	·701	697	693	689	685	681	677	673	669	666	8					
37	·662	658	654	650	646	643	639	635	632	628	7					
38	·624	621	617	613	610	606	603	599	596	592	6					
39	1·589	586	582	579	575	572	569	566	562	559	5	1 1 2 2 3 1 1 2 2 3 1 1 2 2 3 1 1 2 2 3				

P.P.s for differences exceeding 16, if not shown on this page, should be taken from the inside end cover of the book. For angles between 8° and 18° P.P.s based on actual differences should be used.



X	0'	6' 12' 18'	24' 30' 36'	42' 48' 54'	$\Delta$	SUBTRACT				
	0°·0	0°·1 0°·2 0°·3	0°·4 0°·5 0°·6	0°·7 0°·8 0°·9		1' 2' 3' 4' 5'				
40°	1·5557	5525 5493 5461	5429 5398 5366	5335 5304 5273	31	5 10 16 21 26				
41	·5243	5212 5182 5151	5121 5092 5062	5032 5003 4974	30	5 10 15 20 25				
42	·4945	4916 4887 4859	4830 4802 4774	4746 4718 4690	28	5 9 14 19 23				
43	·4663	4635 4608 4581	4554 4527 4501	4474 4448 4422	27	4 9 13 18 22				
44	·4396	4370 4344 4318	4293 4267 4242	4217 4192 4167	25	4 8 13 17 21				
45	1·4142	4118 4093 4069	4044 4020 3996	3972 3949 3925	24	4 8 12 16 20				
46	·3902	3878 3855 3832	3809 3786 3763	3741 3718 3696	23	4 8 11 15 19				
47	·3673	3651 3629 3607	3585 3563 3542	3520 3499 3478	22	4 7 11 15 18				
48	·3456	3435 3414 3393	3373 3352 3331	3311 3291 3270	21	3 7 10 14 17				
49	·3250	3230 3210 3190	3171 3151 3131	3112 3093 3073	20	3 7 10 13 17				
50	1·3054	3035 3016 2997	2978 2960 2941	2923 2904 2886	19	3 6 9 13 16				
51	·2868	2849 2831 2813	2796 2778 2760	2742 2725 2708	18	3 6 9 12 15				
52	·2690	2673 2656 2639	2622 2605 2588	2571 2554 2538	17	3 6 8 11 14				
53	·2521	2505 2489 2472	2456 2440 2424	2408 2392 2376	16	3 5 8 11 13				
54	·2361	2345 2329 2314	2299 2283 2268	2253 2238 2223	15	3 5 8 10 13				
55	1·2208	2193 2178 2163	2149 2134 2120	2105 2091 2076	14	2 5 7 10 12				
56	·2062	2048 2034 2020	2006 1992 1978	1964 1951 1937		2 5 7 9 12				
57	·1924	1910 1897 1883	1870 1857 1844	1831 1818 1805	13	2 4 7 9 11				
58	·1792	1779 1766 1753	1741 1728 1716	1703 1691 1679	12	2 4 6 8 10				
59	·1666	1654 1642 1630	1618 1606 1594	1582 1570 1559		2 4 6 8 10				
60	1·1547	1535 1524 1512	1501 1490 1478	1467 1456 1445	11	2 4 6 7 9				
61	·1434	1423 1412 1401	1390 1379 1368	1357 1347 1336	10	2 4 5 7 9				
62	·1326	1315 1305 1294	1284 1274 1264	1253 1243 1233		2 3 5 7 8				
63	·1223	1213 1203 1194	1184 1174 1164	1155 1145 1136	9	2 3 5 6 8				
64	·1126	1117 1107 1098	1089 1079 1070	1061 1052 1043		2 3 5 6 8				
65	1·1034	1025 1016 1007	0998 0989 0981	0972 0963 0955	8	1 3 4 6 7				
66	·0946	0938 0929 0921	0913 0904 0896	0888 0880 0872		1 3 4 5 7				
67	·0864	0856 0848 0840	0832 0824 0816	0808 0801 0793	7	1 3 4 5 7				
68	·0785	0778 0770 0763	0755 0748 0740	0733 0726 0719		1 2 4 5 6				
69	·0711	0704 0697 0690	0683 0676 0669	0662 0655 0649	6	1 2 3 5 6				
70	1·0642	0635 0628 0622	0615 0608 0602	0595 0589 0583		1 2 3 4 6				
71	·0576	0570 0564 0557	0551 0545 0539	0533 0527 0521	5	1 2 3 4 5				
72	·0515	0509 0503 0497	0491 0485 0480	0474 0468 0463		1 2 3 4 5				
73	·0457	0451 0446 0440	0435 0429 0424	0419 0413 0408	4	1 2 3 4 4				
74	·0403	0398 0393 0388	0382 0377 0372	0367 0363 0358		1 2 2 3 4				
75	1·0353	0348 0343 0338	0334 0329 0324	0320 0315 0311	3	1 2 2 3 4				
76	·0306	0302 0297 0293	0288 0284 0280	0276 0271 0267		1 1 2 3 4				
77	·0263	0259 0255 0251	0247 0243 0239	0235 0231 0227	2	1 1 2 3 3				
78	·0223	0220 0216 0212	0209 0205 0201	0198 0194 0191		1 1 2 2 3				
79	·0187	0184 0180 0177	0174 0170 0167	0164 0161 0157	1	1 1 2 2 3				
80	1·0154	0151 0148 0145	0142 0139 0136	0133 0130 0127		0 1 1 2 2				
81	·0125	0122 0119 0116	0114 0111 0108	0106 0103 0101	2	0 1 1 2 2				
82	·0098	0096 0093 0091	0089 0086 0084	0082 0079 0077		0 1 1 2 2				
83	·0075	0073 0071 0069	0067 0065 0063	0061 0059 0057	1	0 1 1 1 2				
84	·0055	0053 0051 0050	0048 0046 0045	0043 0041 0040		0 1 1 1 1				
85	1·0038	0037 0035 0034	0032 0031 0030	0028 0027 0026	1	0 0 1 1 1				
86	·0024	0023 0022 0021	0020 0019 0018	0017 0016 0015		0 0 0 1 1				
87	·0014	0013 0012 0011	0010 0010 0009	0008 0007 0007	1	0 0 0 1 1				
88	·0006	0006 0005 0004	0004 0003 0003	0003 0002 0002		0 0 0 1 1				
89	·0002	0001 0001 0001	0001 0000 0000	0000 0000 0000	1	0 0 0 1 1				
90	1·0000					0 0 0 1 1				

See small Table  
p. 23, top right.

	0	100	200	300	400	500	600	700	800	900
1	1	101	3.67	7.43	401	3.167	601	701	32.89	17.53
3	3	103	7.29	3.101	13.31	503	32.67	19.37	11.73	3.7.43
5	5	3.5.7	5.41	5.61	34.5	5.101	5.112	3.5.47	5.7.23	5.181
7	7	107	32.23	307	11.37	3.132	607	7.101	3.269	907
9	32	109	11.19	3.103	409	509	3.7.29	709	809	32.101
11	11	3.37	211	311	3.137	7.73	13.47	32.79	811	911
13	13	113	3.71	313	7.59	33.19	613	23.31	3.271	11.83
15	3.5	5.23	5.43	32.5.7	5.83	5.103	3.5.41	5.11.13	5.163	3.5.61
17	17	32.13	7.31	317	3.139	11.47	617	3.239	19.43	7.131
19	19	7.17	3.73	11.29	419	3.173	619	719	32.7.13	919
21	3.7	112	13.17	3.107	421	521	33.23	7.103	821	3.307
23	23	3.41	223	17.19	32.47	523	7.89	3.241	823	13.71
25	52	53	32.52	52.13	52.17	3.52.7	54	52.29	3.52.11	52.37
27	33	127	227	3.109	7.61	17.31	3.11.19	727	827	32.103
29	29	3.43	229	7.47	3.11.13	232	17.37	36	829	929
31	31	131	3.7.11	331	431	32.59	631	17.43	3.277	72.19
33	3.11	7.19	233	32.37	433	13.41	3.211	733	72.17	3.311
35	5.7	33.5	5.47	5.67	3.5.29	5.107	5.127	3.5.72	5.167	5.11.17
37	37	137	3.79	337	19.23	3.179	72.13	11.67	33.31	937
39	3.13	139	239	3.113	439	72.11	32.71	739	839	3.313
41	41	3.47	241	11.31	32.72	541	641	3.13.19	292	941
43	43	11.13	35	73	443	3.181	643	743	3.281	23.41
45	32.5	5.29	5.72	3.5.23	5.89	5.109	3.5.43	5.149	5.132	33.5.7
47	47	3.72	13.19	347	3.149	547	647	32.83	7.112	947
49	72	149	3.83	349	449	32.61	11.59	7.107	3.283	13.73
51	3.17	151	251	33.13	11.41	19.29	3.7.31	751	23.37	3.317
53	53	32.17	11.23	353	3.151	7.79	653	3.251	853	953
55	5.11	5.31	3.5.17	5.71	5.7.13	3.5.37	5.131	5.151	32.5.19	5.191
57	3.19	157	257	3.7.17	457	557	32.73	757	857	3.11.29
59	59	3.53	7.37	359	33.17	13.43	659	3.11.23	859	7.137
61	61	7.23	32.29	192	461	3.11.17	661	761	3.7.41	312
63	32.7	163	263	3.112	463	563	3.13.17	7.109	863	32.107
65	5.13	3.5.11	5.53	5.73	3.5.31	5.113	5.7.19	32.5.17	5.173	5.193
67	67	167	3.89	367	467	34.7	23.29	13.59	3.172	967
69	3.23	132	269	32.41	7.67	569	3.223	769	11.79	3.17.19
71	71	32.19	271	7.53	3.157	571	11.61	3.257	13.67	971
73	73	173	3.7.13	373	11.43	3.191	673	773	32.97	7.139
75	3.52	52.7	52.11	3.53	52.19	52.23	33.52	52.31	53.7	3.52.13
77	7.11	3.59	277	13.29	32.53	577	677	3.7.37	877	977
79	79	179	32.31	379	479	3.193	7.97	19.41	3.293	11.89
81	34	181	281	3.127	13.37	7.83	3.227	11.71	881	32.109
83	83	3.61	283	383	3.7.23	11.53	683	33.29	883	983
85	5.17	5.37	3.5.19	5.7.11	5.97	32.5.13	5.137	5.157	3.5.59	5.197
87	3.29	11.17	7.41	32.43	487	587	3.229	787	887	3.7.47
89	89	33.7	172	389	3.163	19.31	13.53	3.263	7.127	23.43
91	7.13	191	3.97	17.23	491	3.197	691	7.113	34.11	991
93	3.31	193	293	3.131	17.29	593	32.7.11	13.61	19.47	3.331
95	5.19	3.5.13	5.59	5.79	32.5.11	5.7.17	5.139	3.5.53	5.179	5.199
97	97	197	33.11	397	7.71	3.199	17.41	797	3.13.23	997
99	32.11	199	13.23	3.7.19	499	599	3.233	17.47	29.31	33.37

This table enables any number less than 1000 to be factorised. If the number is even, divide by 2 until an odd quantity is reached. Primes are printed in bold type. Any number between 1000 and 5200 that is not a prime (see pages 37 and 39) must be divisible by a prime not exceeding 71.

$x$	Deg.	$\sin x$	$\tan x$	$\cos x$	$\log \sin x$	$\log \tan x$	$\log \cos x$
$r$	$o$						
0-00	0-00	0	0	1	$-\infty$	$-\infty$	0
0-01	0-57	0100	0100	1-0000	2-0000	2-0000	0-0000
0-02	1-15	0200	0200	0-9998	3010	3011	1-9999
0-03	1-72	0300	0300	0-9996	4771	4773	9998
0-04	2-29	0400	0400	0-9992	6019	6023	9997
0-05	2-86	0-0500	0-0500	0-9988	2-6988	2-6993	1-9995
0-06	3-44	0600	0601	0-9982	7779	7787	9992
0-07	4-01	0699	0701	0-9976	8447	8458	9989
0-08	4-58	0799	0802	0-9968	9026	9040	9986
0-09	5-16	0899	0902	0-9960	9537	2-9554	9982
0-10	5-73	0-0998	0-1003	0-9950	2-9993	1-0015	1-9978
0-11	6-30	1098	1104	0-9940	1-0405	0431	9974
0-12	6-88	1197	1206	0-9928	0781	0813	9969
0-13	7-45	1296	1307	0-9916	1127	1164	9963
0-14	8-02	1395	1409	0-9902	1447	1490	9957
0-15	8-59	0-1494	0-1511	0-9888	1-1745	1-1794	1-9951
0-16	9-17	1593	1614	0-9872	2023	2078	9944
0-17	9-74	1692	1717	0-9856	2284	2347	9937
0-18	10-31	1790	1820	0-9838	2529	2600	9929
0-19	10-89	1889	1923	0-9820	2761	2840	9921
0-20	11-46	0-1987	0-2027	0-9801	1-2981	1-3069	1-9913
0-21	12-03	2085	2131	0-9780	3190	3287	9904
0-22	12-61	2182	2236	0-9759	3389	3495	9894
0-23	13-18	2280	2341	0-9737	3579	3695	9884
0-24	13-75	2377	2447	0-9713	3760	3887	9874
0-25	14-32	0-2474	0-2553	0-9689	1-3934	1-4071	1-9863
0-26	14-90	2571	2660	0-9664	4101	4249	9852
0-27	15-47	2667	2768	0-9638	4261	4421	9840
0-28	16-04	2764	2876	0-9611	4415	4587	9827
0-29	16-62	2860	2984	0-9582	4563	4748	9815
0-30	17-19	0-2955	0-3093	0-9553	1-4706	1-4904	1-9802
0-31	17-76	3051	3203	0-9523	4844	5056	9788
0-32	18-33	3146	3314	0-9492	4977	5203	9774
0-33	18-91	3240	3425	0-9460	5106	5347	9759
0-34	19-48	3335	3537	0-9428	5231	5487	9744
0-35	20-05	0-3429	0-3650	0-9394	1-5352	1-5623	1-9728
0-36	20-63	3523	3764	0-9359	5469	5757	9712
0-37	21-20	3616	3879	0-9323	5582	5887	9696
0-38	21-77	3709	3994	0-9287	5693	6014	9679
0-39	22-35	3802	4111	0-9249	5800	6139	9661
0-40	22-92	0-3894	0-4228	0-9211	1-5904	1-6261	1-9643
0-41	23-49	3986	4346	0-9171	6005	6381	9624
0-42	24-06	4078	4466	0-9131	6104	6499	9605
0-43	24-64	4169	4586	0-9090	6200	6615	9585
0-44	25-21	4259	4708	0-9048	6293	6728	9565
0-45	25-78	0-4350	0-4831	0-9004	1-6385	1-6840	1-9545
0-46	26-36	4439	4954	0-8961	6473	6950	9523
0-47	26-93	4529	5080	0-8916	6560	7058	9502
0-48	27-50	4618	5206	0-8870	6644	7165	9479
0-49	28-07	4706	5334	0-8823	6727	7270	9456
0-50	28-65	0-4794	0-5463	0-8776	1-6807	1-7374	1-9433
0-51	29-22	4882	5594	0-8727	6886	7477	9409
0-52	29-79	4969	5726	0-8678	6963	7578	9384
0-53	30-37	5055	5859	0-8628	7037	7678	9359
0-54	30-94	0-5141	0-5994	0-8577	1-7111	1-7777	1-9333

x	Deg.	sin x	tan x	cos x	log sin x	log tan x	log cos x
r	o						
0.55	31.51	0.5227	0.6131	0.8525	1.7182	1.7875	1.9307
.56	32.09	.5312	.6269	.8473	.7252	.7972	.9280
.57	32.66	.5396	.6410	.8419	.7321	.8068	.9253
.58	33.23	.5480	.6552	.8365	.7388	.8164	.9224
.59	33.80	.5564	.6696	.8309	.7454	.8258	.9196
0.60	34.38	0.5646	0.6841	0.8253	1.7518	1.8351	1.9166
.61	34.95	.5729	.6989	.8196	.7581	.8444	.9136
.62	35.52	.5810	.7139	.8139	.7642	.8536	.9106
.63	36.10	.5891	.7291	.8080	.7702	.8628	.9074
.64	36.67	.5972	.7445	.8021	.7761	.8719	.9042
0.65	37.24	0.6052	0.7602	0.7961	1.7819	1.8809	1.9010
.66	37.82	.6131	.7761	.7900	.7875	.8899	.8976
.67	38.39	.6210	.7923	.7838	.7931	.8989	.8942
.68	38.96	.6288	.8087	.7776	.7985	.9078	.8907
.69	39.53	.6365	.8253	.7712	.8038	.9166	.8872
0.70	40.11	0.6442	0.8423	0.7648	1.8090	1.9255	1.8836
.71	40.68	.6518	.8595	.7584	.8141	.9343	.8799
.72	41.25	.6594	.8771	.7518	.8191	.9430	.8761
.73	41.83	.6669	.8949	.7452	.8240	.9518	.8723
.74	42.40	.6743	.9131	.7385	.8288	.9605	.8683
0.75	42.97	0.6816	0.9316	0.7317	1.8336	1.9692	1.8643
.76	43.54	.6889	.9505	.7248	.8382	.9779	.8602
.77	44.12	.6961	.9697	.7179	.8427	.9866	.8561
.78	44.69	.7033	0.9893	.7109	.8471	1.9953	.8518
.79	45.26	.7104	1.0092	.7038	.8515	0.0040	.8475
0.80	45.84	0.7174	1.0296	0.6967	1.8557	0.0127	1.8430
.81	46.41	.7243	.0505	.6895	.8599	.0214	.8385
.82	46.98	.7311	.0717	.6822	.8640	.0301	.8339
.83	47.56	.7379	.0934	.6749	.8680	.0388	.8292
.84	48.13	.7446	.1156	.6675	.8719	.0475	.8244
0.85	48.70	0.7513	1.1383	0.6600	1.8758	0.0563	1.8195
.86	49.27	.7578	.1616	.6524	.8796	.0650	.8145
.87	49.85	.7643	.1853	.6448	.8833	.0738	.8094
.88	50.42	.7707	.2097	.6372	.8869	.0827	.8042
.89	50.99	.7771	.2346	.6294	.8905	.0915	.7989
0.90	51.57	0.7833	1.2602	0.6216	1.8939	0.1004	1.7935
.91	52.14	.7895	.2864	.6137	.8974	.1094	.7880
.92	52.71	.7956	.3133	.6058	.9007	.1184	.7823
.93	53.29	.8016	.3409	.5978	.9040	.1274	.7766
.94	53.86	.8076	.3692	.5898	.9072	.1365	.7707
0.95	54.43	0.8134	1.3984	0.5817	1.9103	0.1456	1.7647
.96	55.00	.8192	.4284	.5735	.9134	.1548	.7585
.97	55.58	.8249	.4592	.5653	.9164	.1641	.7523
.98	56.15	.8305	.4910	.5570	.9193	.1735	.7459
.99	56.72	.8360	.5237	.5487	.9222	.1829	.7393
1.00	57.30	0.8415	1.5574	0.5403	1.9250	0.1924	1.7326
.01	57.87	.8468	.5922	.5319	.9278	.2020	.7258
.02	58.44	.8521	.6281	.5234	.9305	.2117	.7188
.03	59.01	.8573	.6652	.5148	.9331	.2215	.7117
.04	59.59	.8624	.7036	.5062	.9357	.2314	.7043
1.05	60.16	0.8674	1.7433	0.4976	1.9382	0.2414	1.6969
.06	60.73	.8724	.7844	.4889	.9407	.2515	.6892
.07	61.31	.8772	.8270	.4801	.9431	.2617	.6814
.08	61.88	.8820	.8712	.4713	.9454	.2721	.6733
.09	62.45	0.8866	1.9171	0.4625	1.9477	0.2826	1.6651



x	Deg.	sin x	tan x	cos x	log sin x	log tan x	log cos x
r	o						
1.10	63.03	0.8912	1.965	0.4536	$\bar{1}.9500$	0.2933	$\bar{1}.6567$
.11	63.60	.8957	2.014	.4447	.9522	.3041	.6480
.12	64.17	.9001	2.066	.4357	.9543	.3151	.6392
.13	64.74	.9044	2.120	.4267	.9564	.3263	.6301
.14	65.32	.9086	2.176	.4176	.9584	.3376	.6208
1.15	65.89	0.9128	2.234	0.4085	$\bar{1}.9604$	0.3492	$\bar{1}.6112$
.16	66.46	.9168	2.296	.3993	.9623	.3609	.6013
.17	67.04	.9208	2.360	.3902	.9641	.3729	.5912
.18	67.61	.9246	2.427	.3809	.9660	.3851	.5808
.19	68.18	.9284	2.498	.3717	.9677	.3976	.5701
1.20	68.75	0.9320	2.572	0.3624	$\bar{1}.9694$	0.4103	$\bar{1}.5591$
.21	69.33	.9356	2.650	.3530	.9711	.4233	.5478
.22	69.90	.9391	2.733	.3436	.9727	.4366	.5361
.23	70.47	.9425	2.820	.3342	.9743	.4502	.5241
.24	71.05	.9458	2.912	.3248	.9758	.4642	.5116
1.25	71.62	0.9490	3.010	0.3153	$\bar{1}.9773$	0.4785	$\bar{1}.4988$
.26	72.19	.9521	3.113	.3058	.9787	.4932	.4855
.27	72.77	.9551	3.224	.2963	.9800	.5083	.4717
.28	73.34	.9580	3.341	.2867	.9814	.5239	.4575
.29	73.91	.9608	3.467	.2771	.9826	.5400	.4427
1.30	74.48	0.9636	3.602	0.2675	$\bar{1}.9839$	0.5566	$\bar{1}.4273$
.31	75.06	.9662	3.747	.2579	.9851	.5737	.4114
.32	75.63	.9687	3.903	.2482	.9862	.5914	.3948
.33	76.20	.9711	4.072	.2385	.9873	.6098	.3774
.34	76.78	.9735	4.256	.2288	.9883	.6290	.3594
1.35	77.35	0.9757	4.455	0.2190	$\bar{1}.9893$	0.6489	$\bar{1}.3405$
.36	77.92	.9779	4.673	.2092	.9903	.6696	.3206
.37	78.50	.9799	4.913	.1994	.9912	.6914	.2998
.38	79.07	.9819	5.177	.1896	.9920	.7141	.2779
.39	79.64	.9837	5.471	.1798	.9929	.7380	.2548
1.40	80.21	0.9854	5.798	0.1700	$\bar{1}.9936$	0.7633	$\bar{1}.2304$
.41	80.79	.9871	6.165	.1601	.9944	.7900	.2044
.42	81.36	.9887	6.581	.1502	.9950	.8183	.1767
.43	81.93	.9901	7.055	.1403	.9957	.8485	.1472
.44	82.51	.9915	7.602	.1304	.9963	.8809	.1154
1.45	83.08	0.9927	8.238	0.1205	$\bar{1}.9968$	0.9158	$\bar{1}.0810$
.46	83.65	.9939	8.989	.1106	.9973	.9537	.1.0436
.47	84.22	.9949	9.887	.1006	.9978	0.9951	1.0027
.48	84.80	.9959	10.983	.0907	.9982	1.0407	2.9575
.49	85.37	.9967	12.350	.0807	.9986	1.0917	2.9069
1.50	85.94	0.9975	14.101	0.0707	$\bar{1}.9989$	1.1493	$\bar{2}.8496$
.51	86.52	.9982	16.428	.0608	.9992	.2156	.7836
.52	87.09	.9987	19.670	.0508	.9994	.2938	.7056
.53	87.66	.9992	24.498	.0408	.9996	.3891	.6105
.54	88.24	.9995	32.461	.0308	.9998	.5114	.4884
1.55	88.81	0.9998	48.078	0.0208	$\bar{1}.9999$	1.6820	$\bar{2}.3180$
.56	89.38	0.9999	92.620	.0108	0.0000	1.9667	$\bar{2}.0333$
.57	89.95	1.0000	1255.766	.0008	0.0000	3.0989	$\bar{4}.9011$
$\pi/2$	90.00	1	$\infty$	0	0	$+\infty$	$-\infty$

No.	Square	Cube	Square Roots		Cube Roots			Factorials		Reci- procal
$x$	$x^2$	$x^3$	$\sqrt{x}$ or $x^{\frac{1}{2}}$	$\frac{1}{\sqrt{x}}$	$\sqrt[3]{x}$	$\sqrt[3]{10x}$	$\sqrt[3]{100x}$	$* x!$	$\log x!$	$\frac{1}{x}$ or $x^{-1}$
1	1	1	1.0000	1.0000	1.000	2.154	4.642	1	0.0000	1.00000
2	4	8	1.4142	0.7071	1.260	2.714	5.848	2	0.3010	0.50000
3	9	27	1.7321	.5774	1.442	3.107	6.694	6	0.7782	.33333
4	16	64	2.0000	.5000	1.587	3.420	7.368	24	1.3802	.25000
5	25	125	2.2361	0.4472	1.710	3.684	7.937	120	2.0792	0.20000
6	36	216	2.4495	.4082	1.817	3.915	8.434	720	2.8573	.16667
7	49	343	2.6458	.3780	1.913	4.121	8.879	5040	3.7024	.14286
8	64	512	2.8284	.3536	2.000	4.309	9.283	40320	4.6055	.12500
9	81	729	3.0000	.3333	2.080	4.481	9.655	362880	5.5598	.11111
10	1 00	1 000	3.1623	0.3162	2.154	4.642	10.000	3.6288	6.5598	0.10000
11	1 21	1 331	3.3166	.3015	2.224	4.791	10.323	3.9917	7.6012	.09091
12	1 44	1 728	3.4641	.2887	2.289	4.932	10.627	4.7900	8.6803	.08333
13	1 69	2 197	3.6056	.2774	2.351	5.066	10.914	6.2270	9.7943	.07692
14	1 96	2 744	3.7417	.2673	2.410	5.192	11.187	8.7178	10.9404	.07143
15	2 25	3 375	3.8730	0.2582	2.466	5.313	11.447	1.3077	12.1165	0.06667
16	2 56	4 096	4.0000	.2500	2.520	5.429	11.696	2.0923	13.3206	.06250
17	2 89	4 913	4.1231	.2425	2.571	5.540	11.935	3.5569	14.5511	.05882
18	3 24	5 832	4.2426	.2357	2.621	5.646	12.164	6.4024	15.8063	.05556
19	3 61	6 859	4.3589	.2294	2.668	5.749	12.386	1.2165	17.0851	.05263
20	4 00	8 000	4.4721	0.2236	2.714	5.848	12.599	2.4329	18.3861	0.05000
21	4 41	9 261	4.5826	.2182	2.759	5.944	12.806	5.1091	19.7083	.04762
22	4 84	10 648	4.6904	.2132	2.802	6.037	13.006	1.1240	21.0508	.04545
23	5 29	12 167	4.7958	.2085	2.844	6.127	13.200	2.5852	22.4125	.04348
24	5 76	13 824	4.8990	.2041	2.884	6.214	13.389	6.2045	23.7927	.04167
25	6 25	15 625	5.0000	0.2000	2.924	6.300	13.572	1.5511	25.1906	0.04000
26	6 76	17 576	5.0990	.1961	2.962	6.383	13.751	4.0329	26.6056	.03846
27	7 29	19 683	5.1962	.1925	3.000	6.463	13.925	1.0889	28.0370	.03704
28	7 84	21 952	5.2915	.1890	3.037	6.542	14.095	3.0489	29.4841	.03571
29	8 41	24 389	5.3852	.1857	3.072	6.619	14.260	8.8418	30.9465	.03448
30	9 00	27 000	5.4772	0.1826	3.107	6.694	14.422	2.6525	32.4237	0.03333
31	9 61	29 791	5.5678	.1796	3.141	6.768	14.581	8.2228	33.9150	.03226
32	10 24	32 768	5.6569	.1768	3.175	6.840	14.736	2.6313	35.4202	.03125
33	10 89	35 937	5.7446	.1741	3.208	6.910	14.888	8.6833	36.9387	.03030
34	11 56	39 304	5.8310	.1715	3.240	6.980	15.037	2.9523	38.4702	.02941
35	12 25	42 875	5.9161	0.1690	3.271	7.047	15.183	1.0333	40.0142	0.02857
36	12 96	46 656	6.0000	.1667	3.302	7.114	15.326	3.7199	41.5705	.02778
37	13 69	50 653	6.0828	.1644	3.332	7.179	15.467	1.3764	43.1387	.02703
38	14 44	54 872	6.1644	.1622	3.362	7.243	15.605	5.2302	44.7185	.02632
39	15 21	59 319	6.2450	.1601	3.391	7.306	15.741	2.0398	46.3096	.02564
40	16 00	64 000	6.3246	0.1581	3.420	7.368	15.874	8.1592	47.9116	0.02500
41	16 81	68 921	6.4031	.1562	3.448	7.429	16.005	3.3453	49.5244	.02439
42	17 64	74 088	6.4807	.1543	3.476	7.489	16.134	1.4050	51.1477	.02381
43	18 49	79 507	6.5574	.1525	3.503	7.548	16.261	6.0415	52.7811	.02326
44	19 36	85 184	6.6332	.1508	3.530	7.606	16.386	2.6583	54.4246	.02273
45	20 25	91 125	6.7082	0.1491	3.557	7.663	16.510	1.1962	56.0778	0.02222
46	21 16	97 336	6.7823	.1474	3.583	7.719	16.631	5.5026	57.7406	.02174
47	22 09	103 823	6.8557	.1459	3.609	7.775	16.751	2.5862	59.4127	.02128
48	23 04	110 592	6.9282	.1443	3.634	7.830	16.869	1.2414	61.0939	.02083
49	24 01	117 649	7.0000	.1429	3.659	7.884	16.985	6.0828	62.7841	.02041
50	25 00	125 000	7.0711	0.1414	3.684	7.937	17.100	3.0414	64.4831	0.02000

\* If  $x$  is greater than 9, multiply by  $10^c$  where  $c$  is the characteristic of  $\log x!$

No.	Square	Cube	Square Roots		Cube Roots			Factorials		Reci- procols
$x$	$x^2$	$x^3$	$\sqrt{x}$ or $x^{\frac{1}{2}}$	$\frac{1}{\sqrt{x}}$	$\sqrt[3]{x}$	$\sqrt[3]{10x}$	$\sqrt[3]{100x}$	$* x!$	$\log x!$	$\frac{1}{x}$ or $x^{-1}$
50	25.00	125 000	7.0711	0.1414	3.684	7.937	17.100	3.0414	64.4831	0.02000
51	26.01	132 651	7.1414	.1400	3.708	7.990	17.213	1.5511	66.1906	.01961
52	27.04	140 608	7.2111	.1387	3.733	8.041	17.325	8.0658	67.9066	.01923
53	28.09	148 877	7.2801	.1374	3.756	8.093	17.435	4.2749	69.6309	.01887
54	29.16	157 464	7.3485	.1361	3.780	8.143	17.544	2.3084	71.3633	.01852
55	30.25	166 375	7.4162	0.1348	3.803	8.193	17.652	1.2696	73.1037	0.01818
56	31.36	175 616	7.4833	.1336	3.826	8.243	17.758	7.1100	74.8519	.01786
57	32.49	185 193	7.5498	.1325	3.849	8.291	17.863	4.0527	76.6077	.01754
58	33.64	195 112	7.6158	.1313	3.871	8.340	17.967	2.3506	78.3712	.01724
59	34.81	205 379	7.6811	.1302	3.893	8.387	18.070	1.3868	80.1420	.01695
60	36.00	216 000	7.7460	0.1291	3.915	8.434	18.171	8.3210	81.9202	0.01667
61	37.21	226 981	7.8102	.1280	3.936	8.481	18.272	5.0758	83.7055	.01639
62	38.44	238 328	7.8740	.1270	3.958	8.527	18.371	3.1470	85.4979	.01613
63	39.69	250 047	7.9373	.1260	3.979	8.573	18.469	1.9826	87.2972	.01587
64	40.96	262 144	8.0000	.1250	4.000	8.618	18.566	1.2689	89.1034	.01562
65	42.25	274 625	8.0623	0.1240	4.021	8.662	18.663	8.2477	90.9163	0.01538
66	43.56	287 496	8.1240	.1231	4.041	8.707	18.758	5.4434	92.7359	.01515
67	44.89	300 763	8.1854	.1222	4.062	8.750	18.852	3.6471	94.5619	.01493
68	46.24	314 432	8.2462	.1213	4.082	8.794	18.945	2.4800	96.3945	.01471
69	47.61	328 509	8.3066	.1204	4.102	8.837	19.038	1.7112	98.2333	.01449
70	49.00	343 000	8.3666	0.1195	4.121	8.879	19.129	1.1979	100.0784	0.01429
71	50.41	357 911	8.4261	.1187	4.141	8.921	19.220	8.5048	101.9297	.01408
72	51.84	373 248	8.4853	.1179	4.160	8.963	19.310	6.1234	103.7870	.01389
73	53.29	389 017	8.5440	.1170	4.179	9.004	19.399	4.4701	105.6503	.01370
74	54.76	405 224	8.6023	.1162	4.198	9.045	19.487	3.3079	107.5196	.01351
75	56.25	421 875	8.6603	0.1155	4.217	9.086	19.574	2.4809	109.3946	0.01333
76	57.76	438 976	8.7178	.1147	4.236	9.126	19.661	1.8855	111.2754	.01316
77	59.29	456 533	8.7750	.1140	4.254	9.166	19.747	1.4518	113.1619	.01299
78	60.84	474 552	8.8318	.1132	4.273	9.205	19.832	1.1324	115.0540	.01282
79	62.41	493 039	8.8882	.1125	4.291	9.244	19.916	8.9462	116.9516	.01266
80	64.00	512 000	8.9443	0.1118	4.309	9.283	20.000	7.1569	118.8547	0.01250
81	65.61	531 441	9.0000	.1111	4.327	9.322	20.083	5.7971	120.7632	.01235
82	67.24	551 368	9.0554	.1104	4.344	9.360	20.165	4.7536	122.6770	.01220
83	68.89	571 787	9.1104	.1098	4.362	9.398	20.247	3.9455	124.5961	.01205
84	70.56	592 704	9.1652	.1091	4.380	9.435	20.328	3.3142	126.5204	.01190
85	72.25	614 125	9.2195	0.1085	4.397	9.473	20.408	2.8171	128.4498	0.01176
86	73.96	636 056	9.2736	.1078	4.414	9.510	20.488	2.4227	130.3843	.01163
87	75.69	658 503	9.3274	.1072	4.431	9.546	20.567	2.1078	132.3238	.01149
88	77.44	681 472	9.3808	.1066	4.448	9.583	20.646	1.8548	134.2683	.01136
89	79.21	704 969	9.4340	.1060	4.465	9.619	20.724	1.6508	136.2177	.01124
90	81.00	729 000	9.4868	0.1054	4.481	9.655	20.801	1.4857	138.1719	0.01111
91	82.81	753 571	9.5394	.1048	4.498	9.691	20.878	1.3520	140.1310	.01099
92	84.64	778 688	9.5917	.1043	4.514	9.726	20.954	1.2438	142.0948	.01087
93	86.49	804 357	9.6437	.1037	4.531	9.761	21.029	1.1568	144.0632	.01075
94	88.36	830 584	9.6954	.1031	4.547	9.796	21.105	1.0874	146.0364	.01064
95	90.25	857 375	9.7468	0.1026	4.563	9.830	21.179	1.0330	148.0141	0.01053
96	92.16	884 736	9.7980	.1021	4.579	9.865	21.253	0.9168	149.9964	.01042
97	94.09	912 673	9.8489	.1015	4.595	9.899	21.327	0.8193	151.9831	.01031
98	96.04	941 192	9.8995	.1010	4.610	9.933	21.400	0.7426	153.9744	.01020
99	98.01	970 299	9.9499	.1005	4.626	9.967	21.472	0.6736	155.9700	.01010
100	100.00	1000 000	10.0000	0.1000	4.642	10.000	21.544	0.6021	157.9700	0.01000

\* Multiply by  $10^c$ , where  $c$  is the characteristic of  $\log x!$

x	0	1	2	3	4	5	6	7	8	9	$\Delta$	ADD								
												1	2	3	4	5	6	7	8	9
1-0	1-000	1-020	1-040	1-061	1-082	1-103	1-124	1-145	1-166	1-188	21	2	4	6	8	10	13	15	17	19
1-1	1-210	1-232	1-254	1-277	1-300	1-323	1-346	1-369	1-392	1-416	23	2	5	7	9	11	14	16	18	21
1-2	1-440	1-464	1-488	1-513	1-538	1-563	1-588	1-613	1-638	1-664	25	2	5	7	10	12	15	17	20	22
1-3	1-690	1-716	1-742	1-769	1-796	1-823	1-850	1-877	1-904	1-932	27	3	5	8	11	13	16	19	22	24
1-4	1-960	1-988	2-016	2-045	2-074	2-103	2-132	2-161	2-190	2-220	29	3	6	9	12	14	17	20	23	26
1-5	2-250	2-280	2-310	2-341	2-372	2-403	2-434	2-465	2-496	2-528	31	3	6	9	12	15	19	22	25	28
1-6	2-560	2-592	2-624	2-657	2-690	2-723	2-756	2-789	2-822	2-856	33	3	7	10	13	16	20	23	26	30
1-7	2-890	2-924	2-958	2-993	3-028	3-063	3-098	3-133	3-168	3-204	35	3	7	10	14	17	21	24	28	31
1-8	3-240	3-276	3-312	3-349	3-386	3-423	3-460	3-497	3-534	3-572	37	4	7	11	15	18	22	26	30	33
1-9	3-610	3-648	3-686	3-725	3-764	3-803	3-842	3-881	3-920	3-960	39	4	8	12	16	19	23	27	31	35
2-0	4-000	4-040	4-080	4-121	4-162	4-203	4-244	4-285	4-326	4-368	41	4	8	12	16	20	25	29	33	37
2-1	4-410	4-452	4-494	4-537	4-580	4-623	4-666	4-709	4-752	4-796	43	4	9	13	17	21	26	30	34	39
2-2	4-840	4-884	4-928	4-973	5-018	5-063	5-108	5-153	5-198	5-244	45	4	9	13	18	22	27	31	36	40
2-3	5-290	5-336	5-382	5-429	5-476	5-523	5-570	5-617	5-664	5-712	47	5	9	14	19	23	28	33	38	42
2-4	5-760	5-808	5-856	5-905	5-954	6-003	6-052	6-101	6-150	6-200	49	5	10	15	20	24	29	34	39	44
2-5	6-250	6-300	6-350	6-401	6-452	6-503	6-554	6-605	6-656	6-708	51	5	10	15	20	25	31	36	41	46
2-6	6-760	6-812	6-864	6-917	6-970	7-023	7-076	7-129	7-182	7-236	53	5	11	16	21	26	32	37	42	48
2-7	7-290	7-344	7-398	7-453	7-508	7-563	7-618	7-673	7-728	7-784	55	5	11	16	22	27	33	38	44	49
2-8	7-840	7-896	7-952	8-009	8-066	8-123	8-180	8-237	8-294	8-352	57	6	11	17	23	28	34	40	46	51
2-9	8-410	8-468	8-526	8-585	8-644	8-703	8-762	8-821	8-880	8-940	59	6	12	18	24	29	35	41	47	53
3-0	9-000	9-060	9-120	9-181	9-242	9-303	9-364	9-425	9-486	9-548	61	6	12	18	24	30	37	43	49	55
3-1	9-610	9-672	9-734	9-797	9-860	9-923	9-986	10-049	10-112	10-176	63	6	13	19	25	31	38	44	50	57
3-2	10-24	10-30	10-37	10-43	10-50	10-56	10-63	10-69	10-76	10-82	6	1	1	2	2	3	4	4	5	5
3-3	10-89	10-96	11-02	11-09	11-16	11-22	11-29	11-36	11-42	11-49	1	1	1	2	3	3	4	5	5	6
3-4	11-56	11-63	11-70	11-76	11-83	11-90	11-97	12-04	12-11	12-18	1	1	1	2	3	3	4	5	6	6
3-5	12-25	12-32	12-39	12-46	12-53	12-60	12-67	12-74	12-82	12-89	7	1	1	2	3	4	4	5	6	6
3-6	12-96	13-03	13-10	13-18	13-25	13-32	13-40	13-47	13-54	13-62	1	1	1	2	3	4	4	5	6	7
3-7	13-69	13-76	13-84	13-91	13-99	14-06	14-14	14-21	14-29	14-36	1	1	2	2	3	4	4	5	6	7
3-8	14-44	14-52	14-59	14-67	14-75	14-82	14-90	14-98	15-05	15-13	1	1	2	2	3	4	5	5	6	7
3-9	15-21	15-29	15-37	15-44	15-52	15-60	15-68	15-76	15-84	15-92	1	1	2	2	3	4	5	6	6	7
4-0	16-00	16-08	16-16	16-24	16-32	16-40	16-48	16-56	16-65	16-73	8	1	2	2	3	4	5	6	6	7
4-1	16-81	16-89	16-97	17-06	17-14	17-22	17-31	17-39	17-47	17-56	1	2	2	3	4	5	6	7	7	8
4-2	17-64	17-72	17-81	17-89	17-98	18-06	18-15	18-23	18-32	18-40	1	2	3	3	4	5	6	7	8	8
4-3	18-49	18-58	18-66	18-75	18-84	18-92	19-01	19-10	19-18	19-27	1	2	3	3	4	5	6	7	8	9
4-4	19-36	19-45	19-54	19-62	19-71	19-80	19-89	19-98	20-07	20-16	1	2	3	4	4	5	6	7	8	9
4-5	20-25	20-34	20-43	20-52	20-61	20-70	20-79	20-88	20-98	21-07	9	1	2	3	4	5	5	6	7	8
4-6	21-16	21-25	21-34	21-44	21-53	21-62	21-72	21-81	21-90	22-00	1	2	3	4	5	6	7	7	8	9
4-7	22-09	22-18	22-28	22-37	22-47	22-56	22-66	22-75	22-85	22-94	1	2	3	4	5	6	7	8	9	9
4-8	23-04	23-14	23-23	23-33	23-43	23-52	23-62	23-72	23-81	23-91	1	2	3	4	5	6	7	8	9	9
4-9	24-01	24-11	24-21	24-30	24-40	24-50	24-60	24-70	24-80	24-90	1	2	3	4	5	6	7	8	9	9
5-0	25-00	25-10	25-20	25-30	25-40	25-50	25-60	25-70	25-81	25-91	10	1	2	3	4	5	6	7	8	9
5-1	26-01	26-11	26-21	26-32	26-42	26-52	26-63	26-73	26-83	26-94	1	2	3	4	5	6	7	8	9	9
5-2	27-04	27-14	27-25	27-35	27-46	27-56	27-67	27-77	27-88	27-98	1	2	3	4	5	6	7	8	9	9
5-3	28-09	28-20	28-30	28-41	28-52	28-62	28-73	28-84	28-94	29-05	1	2	3	4	5	6	7	8	9	10
5-4	29-16	29-27	29-38	29-48	29-59	29-70	29-81	29-92	30-03	30-14	1	2	3	4	5	7	8	9	10	10
5-5	30-25	30-36	30-47	30-58	30-69	30-80	30-91	31-02	31-14	31-25	11	1	2	3	4	6	7	8	9	10
5-6	31-36	31-47	31-58	31-70	31-81	31-92	32-04	32-15	32-26	32-38	1	2	3	4	6	7	8	9	10	10
5-7	32-49	32-60	32-72	32-83	32-95	33-06	33-18	33-29	33-41	33-52	1	2	3	4	6	7	8	9	10	10
5-8	33-64	33-76	33-87	33-99	34-11	34-22	34-34	34-46	34-57	34-69	1	2	4	5	6	7	8	9	11	11
5-9	34-81	34-93	35-05	35-16	35-28	35-40	35-52	35-64	35-76	35-88	12	1	2	4	5	6	7	8	10	11

For each movement of one place in the decimal point of  $x$ , the decimal point in  $x^2$  moves two places in the same direction. Squares given to three decimals can be made exact by adding the following amounts:

Column	0	1	2	3	4	5	6	7	8	9
Units of fourth decimal	0	+1	+4	-1	-4	-5	-4	-1	+4	+1
Thus	$1.23^2 = 1.5130 - .0001 = 1.5129$					$2.38^2 = 5.6640 + .0004 = 5.6644$				



x	0	1	2	3	4	5	6	7	8	9	$\Delta$	ADD								
												1	2	3	4	5	6	7	8	9
6.0	36.00	36.12	36.24	36.36	36.48	36.60	36.72	36.84	36.97	37.09	12	1	2	4	5	6	7	8	10	11
6.1	37.21	37.33	37.45	37.58	37.70	37.82	37.95	38.07	38.19	38.32		1	2	4	5	6	7	9	10	11
6.2	38.44	38.56	38.69	38.81	38.94	39.06	39.19	39.31	39.44	39.56		1	2	4	5	6	8	9	10	11
6.3	39.69	39.82	39.94	40.07	40.20	40.32	40.45	40.58	40.70	40.83		1	3	4	5	6	8	9	10	11
6.4	40.96	41.09	41.22	41.34	41.47	41.60	41.73	41.86	41.99	42.12	13	1	3	4	5	6	8	9	10	12
6.5	42.25	42.38	42.51	42.64	42.77	42.90	43.03	43.16	43.30	43.43		1	3	4	5	7	8	9	10	12
6.6	43.56	43.69	43.82	43.96	44.09	44.22	44.36	44.49	44.62	44.76		1	3	4	5	7	8	9	11	12
6.7	44.89	45.02	45.16	45.29	45.43	45.56	45.70	45.83	45.97	46.10		1	3	4	5	7	8	9	11	12
6.8	46.24	46.38	46.51	46.65	46.79	46.92	47.06	47.20	47.33	47.47		1	3	4	5	7	8	10	11	12
6.9	47.61	47.75	47.89	48.02	48.16	48.30	48.44	48.58	48.72	48.86	14	1	3	4	6	7	8	10	11	13
7.0	49.00	49.14	49.28	49.42	49.56	49.70	49.84	49.98	50.13	50.27		1	3	4	6	7	8	10	11	13
7.1	50.41	50.55	50.69	50.84	50.98	51.12	51.27	51.41	51.55	51.70		1	3	4	6	7	9	10	11	13
7.2	51.84	51.98	52.13	52.27	52.42	52.56	52.71	52.85	53.00	53.14		1	3	4	6	7	9	10	12	13
7.3	53.29	53.44	53.58	53.73	53.88	54.02	54.17	54.32	54.46	54.61		1	3	4	6	7	9	10	12	13
7.4	54.76	54.91	55.06	55.20	55.35	55.50	55.65	55.80	55.95	56.10		1	3	4	6	7	9	10	12	13
7.5	56.25	56.40	56.55	56.70	56.85	57.00	57.15	57.30	57.46	57.61	15	2	3	5	6	8	9	11	12	14
7.6	57.76	57.91	58.06	58.22	58.37	58.52	58.68	58.83	58.98	59.14		2	3	5	6	8	9	11	12	14
7.7	59.29	59.44	59.60	59.75	59.91	60.06	60.22	60.37	60.53	60.68		2	3	5	6	8	9	11	12	14
7.8	60.84	61.00	61.15	61.31	61.47	61.62	61.78	61.94	62.09	62.25		2	3	5	6	8	9	11	13	14
7.9	62.41	62.57	62.73	62.88	63.04	63.20	63.36	63.52	63.68	63.84		2	3	5	6	8	10	11	13	14
8.0	64.00	64.16	64.32	64.48	64.64	64.80	64.96	65.12	65.29	65.45	16	2	3	5	6	8	10	11	13	14
8.1	65.61	65.77	65.93	66.10	66.26	66.42	66.59	66.75	66.91	67.08		2	3	5	7	8	10	11	13	15
8.2	67.24	67.40	67.57	67.73	67.90	68.06	68.23	68.39	68.56	68.72		2	3	5	7	8	10	12	13	15
8.3	68.89	69.06	69.22	69.39	69.56	69.72	69.89	70.06	70.22	70.39		2	3	5	7	8	10	12	13	15
8.4	70.56	70.73	70.90	71.06	71.23	71.40	71.57	71.74	71.91	72.08		2	3	5	7	8	10	12	14	15
8.5	72.25	72.42	72.59	72.76	72.93	73.10	73.27	73.44	73.62	73.79	17	2	3	5	7	9	10	12	14	15
8.6	73.96	74.13	74.30	74.48	74.65	74.82	75.00	75.17	75.34	75.52		2	3	5	7	9	10	12	14	16
8.7	75.69	75.86	76.04	76.21	76.39	76.56	76.74	76.91	77.09	77.26		2	4	5	7	9	10	12	14	16
8.8	77.44	77.62	77.79	77.97	78.15	78.32	78.50	78.68	78.85	79.03		2	4	5	7	9	11	12	14	16
8.9	79.21	79.39	79.57	79.74	79.92	80.10	80.28	80.46	80.64	80.82		2	4	5	7	9	11	13	14	16
9.0	81.00	81.18	81.36	81.54	81.72	81.90	82.08	82.26	82.45	82.63	18	2	4	5	7	9	11	13	14	16
9.1	82.81	82.99	83.17	83.36	83.54	83.72	83.91	84.09	84.27	84.46		2	4	5	7	9	11	13	15	16
9.2	84.64	84.82	85.01	85.19	85.38	85.56	85.75	85.93	86.12	86.30		2	4	6	7	9	11	13	15	17
9.3	86.49	86.68	86.86	87.05	87.24	87.42	87.61	87.80	87.98	88.17		2	4	6	7	9	11	13	15	17
9.4	88.36	88.55	88.74	88.92	89.11	89.30	89.49	89.68	89.87	90.06		2	4	6	8	9	11	13	15	17
9.5	90.25	90.44	90.63	90.82	91.01	91.20	91.39	91.58	91.78	91.97	19	2	4	6	8	10	11	13	15	17
9.6	92.16	92.35	92.54	92.74	92.93	93.12	93.32	93.51	93.70	93.90		2	4	6	8	10	12	14	15	17
9.7	94.09	94.28	94.48	94.67	94.87	95.06	95.26	95.45	95.65	95.84		2	4	6	8	10	12	14	16	18
9.8	96.04	96.24	96.43	96.63	96.83	97.02	97.22	97.42	97.61	97.81		2	4	6	8	10	12	14	16	18
9.9	98.01	98.21	98.41	98.60	98.80	99.00	99.20	99.40	99.60	99.80	20	2	4	6	8	10	12	14	16	18

Squares given to two decimals can be made exact by adding the following amounts, which are in units of the fourth decimal. They depend on the first and second decimals of the number to be squared, and not on the integer. In the table below, the first decimal of the number is shown on the left, and the second in the top line.

1st Decimal	2nd Decimal									
	0	1	2	3	4	5	6	7	8	9
.0 or .5	00	+01	+04	+09	+16	+25	+36	+49	-36	-19
.1 or .6	00	+21	+44	-31	-04	+25	-44	-11	+24	-39
.2 or .7	00	+41	-16	+29	-24	+25	-24	+29	-16	+41
.3 or .8	00	-39	+24	-11	-44	+25	-04	-31	+44	+21
.4 or .9	00	-19	-36	+49	+36	+25	+16	+09	+04	+01

Thus  $4.06^2 = 16.4800 + .0036 = 16.4836$

$9.69^2 = 93.9000 - .0039 = 93.8961$

x	0	1	2	3	4	5	6	7	8	9	Δ	ADD								
												1	2	3	4	5	6	7	8	9
1·0	1·0000	0050	0100	0149	0198	0247	0296	0344	0392	0440	49	5	10	15	20	25	29	34	39	44
1·1	·0488	0536	0583	0630	0677	0724	0770	0817	0863	0909	47	5	9	14	19	24	28	33	38	42
1·2	·0954	1000	1045	1091	1136	1180	1225	1269	1314	1358	45	4	9	14	18	23	27	32	36	40
1·3	·1402	1446	1489	1533	1576	1619	1662	1705	1747	1790	43	4	9	13	17	22	26	30	34	39
1·4	·1832	1874	1916	1958	2000	2042	2083	2124	2166	2207	42	4	8	13	17	21	25	29	34	38
1·5	1·2247	2288	2329	2369	2410	2450	2490	2530	2570	2610	40	4	8	12	16	20	24	28	32	36
1·6	·2649	2689	2728	2767	2806	2845	2884	2923	2961	3000	39	4	8	12	16	19	23	27	31	35
1·7	·3038	3077	3115	3153	3191	3229	3266	3304	3342	3379	38	4	8	11	15	19	23	27	30	34
1·8	·3416	3454	3491	3528	3565	3601	3638	3675	3711	3748	37	4	7	11	15	18	22	26	30	33
1·9	·3784	3820	3856	3892	3928	3964	4000	4036	4071	4107	36	4	7	11	14	18	22	25	29	32
2·0	1·4142	4177	4213	4248	4283	4318	4353	4387	4422	4457	35	3	7	10	14	17	21	24	28	31
2·1	·4491	4526	4560	4595	4629	4663	4697	4731	4765	4799	34	3	7	10	14	17	20	24	27	31
2·2	·4832	4866	4900	4933	4967	5000	5033	5067	5100	5133	33	3	7	10	13	17	20	23	26	30
2·3	·5166	5199	5232	5264	5297	5330	5362	5395	5427	5460	32	3	7	10	13	16	20	23	26	29
2·4	·5492	5524	5556	5588	5620	5652	5684	5716	5748	5780	32	3	6	10	13	16	19	22	26	29
2·5	1·5811	5843	5875	5906	5937	5969	6000	6031	6062	6093	31	3	6	9	13	16	19	22	25	28
2·6	·6125	6155	6186	6217	6248	6279	6310	6340	6371	6401	30	3	6	9	12	15	19	22	25	28
2·7	·6432	6462	6492	6523	6553	6583	6613	6643	6673	6703	30	3	6	9	12	15	18	21	24	27
2·8	·6733	6763	6793	6823	6852	6882	6912	6941	6971	7000	29	3	6	9	12	15	18	21	24	27
2·9	·7029	7059	7088	7117	7146	7176	7205	7234	7263	7292	29	3	6	9	12	15	17	20	23	26
3·0	1·7321	7349	7378	7407	7436	7464	7493	7521	7550	7578	28	3	6	9	11	14	17	20	23	26
3·1	·7607	7635	7664	7692	7720	7748	7776	7804	7833	7861	28	3	6	8	11	14	17	20	22	25
3·2	·7889	7916	7944	7972	8000	8028	8055	8083	8111	8138	27	3	6	8	11	14	17	19	22	25
3·3	·8166	8193	8221	8248	8276	8303	8330	8358	8385	8412	27	3	5	8	11	14	16	19	22	25
3·4	·8439	8466	8493	8520	8547	8574	8601	8628	8655	8682	27	3	5	8	11	13	16	19	22	24
3·5	1·8708	8735	8762	8788	8815	8841	8868	8894	8921	8947	26	3	5	8	11	13	16	19	21	24
3·6	·8974	9000	9026	9053	9079	9105	9131	9157	9183	9209	26	3	5	8	10	13	16	18	21	23
3·7	·9235	9261	9287	9313	9339	9365	9391	9416	9442	9468	25	3	5	8	10	13	16	18	21	23
3·8	·9494	9519	9545	9570	9596	9621	9647	9672	9698	9723	25	3	5	8	10	13	15	18	20	23
3·9	1·9748	9774	9799	9824	9849	9875	9900	9925	9950	9975	25	3	5	8	10	13	15	18	20	23
4·0	2·0000	0025	0050	0075	0100	0125	0149	0174	0199	0224	24	2	5	7	10	12	15	17	20	22
4·1	·0248	0273	0298	0322	0347	0372	0396	0421	0445	0469	24	2	5	7	10	12	15	17	20	22
4·2	·0494	0518	0543	0567	0591	0616	0640	0664	0688	0712	24	2	5	7	10	12	15	17	19	22
4·3	·0736	0761	0785	0809	0833	0857	0881	0905	0928	0952	24	2	5	7	10	12	14	17	19	22
4·4	·0976	1000	1024	1048	1071	1095	1119	1142	1166	1190	24	2	5	7	9	12	14	17	19	21
4·5	2·1213	1237	1260	1284	1307	1331	1354	1378	1401	1424	23	2	5	7	9	12	14	16	19	21
4·6	·1448	1471	1494	1517	1541	1564	1587	1610	1633	1656	23	2	5	7	9	12	14	16	18	21
4·7	·1679	1703	1726	1749	1772	1794	1817	1840	1863	1886	23	2	5	7	9	12	14	16	18	21
4·8	·1909	1932	1954	1977	2000	2023	2045	2068	2091	2113	23	2	5	7	9	11	14	16	18	20
4·9	·2136	2159	2181	2204	2226	2249	2271	2293	2316	2338	23	2	4	7	9	11	14	16	18	20
5·0	2·2361	2383	2405	2428	2450	2472	2494	2517	2539	2561	22	2	4	7	9	11	13	16	18	20
5·1	·2583	2605	2627	2650	2672	2694	2716	2738	2760	2782	22	2	4	7	9	11	13	15	18	20
5·2	·2804	2825	2847	2869	2891	2913	2935	2956	2978	3000	22	2	4	7	9	11	13	15	17	20
5·3	·3022	3043	3065	3087	3108	3130	3152	3173	3195	3216	22	2	4	6	9	11	13	15	17	19
5·4	·3238	3259	3281	3302	3324	3345	3367	3388	3409	3431	22	2	4	6	9	11	13	15	17	19
5·5	2·3452	3473	3495	3516	3537	3558	3580	3601	3622	3643	21	2	4	6	8	11	13	15	17	19
5·6	·3664	3685	3707	3728	3749	3770	3791	3812	3833	3854	21	2	4	6	8	11	13	15	17	19
5·7	·3875	3896	3917	3937	3958	3979	4000	4021	4042	4062	21	2	4	6	8	10	12	15	17	19
5·8	·4083	4104	4125	4145	4166	4187	4207	4228	4249	4269	21	2	4	6	8	10	12	14	17	19
5·9	2·4290	4310	4331	4352	4372	4393	4413	4434	4454	4474	21	2	4	6	8	10	12	14	16	18

This table is to be used for  $x=1\cdot000$  to  $9\cdot999$ , or for any number in that range multiplied by an even power of 10 ( $10^2, 10^{-4}$ , etc.). When the decimal point in  $x$  is moved two places, the decimal point of the corresponding square root moves one place in the same direction (e.g.,  $\sqrt{123\cdot4} = 11\cdot109$ ). The user may prefer to fix by inspection the first significant figure of the root and the place of the decimal point.

x	0	1	2	3	4	5	6	7	8	9	Δ	ADD								
												1	2	3	4	5	6	7	8	9
6-0	2-4495	4515	4536	4556	4576	4597	4617	4637	4658	4678	20	2 4 6	8	10	12			14	16	18
6-1	4698	4718	4739	4759	4779	4799	4819	4839	4860	4880		2 4 6	8	10	12			14	16	18
6-2	4900	4920	4940	4960	4980	5000	5020	5040	5060	5080		2 4 6	8	10	12			14	16	18
6-3	5100	5120	5140	5159	5179	5199	5219	5239	5259	5278		2 4 6	8	10	12			14	16	18
6-4	5298	5318	5338	5357	5377	5397	5417	5436	5456	5475	19	2 4 6	8	10	12			14	16	18
6-5	2-5495	5515	5534	5554	5573	5593	5612	5632	5652	5671		2 4 6	8	10	12			14	16	18
6-6	5690	5710	5729	5749	5768	5788	5807	5826	5846	5865		2 4 6	8	10	12			14	16	17
6-7	5884	5904	5923	5942	5962	5981	6000	6019	6038	6058		2 4 6	8	10	12			14	15	17
6-8	6077	6096	6115	6134	6153	6173	6192	6211	6230	6249	18	2 4 6	8	10	11			13	15	17
6-9	6268	6287	6306	6325	6344	6363	6382	6401	6420	6439		2 4 6	8	10	11			13	15	17
7-0	2-6458	6476	6495	6514	6533	6552	6571	6589	6608	6627		2 4 6	8	9	11			13	15	17
7-1	6646	6665	6683	6702	6721	6739	6758	6777	6796	6814		2 4 6	7	9	11			13	15	17
7-2	6833	6851	6870	6889	6907	6926	6944	6963	6981	7000	17	2 4 6	7	9	11			13	15	17
7-3	7019	7037	7055	7074	7092	7111	7129	7148	7166	7185		2 4 6	7	9	11			13	15	17
7-4	7203	7221	7240	7258	7276	7295	7313	7331	7350	7368		2 4 5	7	9	11			13	15	16
7-5	2-7386	7404	7423	7441	7459	7477	7495	7514	7532	7550		2 4 5	7	9	11			13	15	16
7-6	7568	7586	7604	7622	7641	7659	7677	7695	7713	7731	16	2 4 5	7	9	11			13	14	16
7-7	7749	7767	7785	7803	7821	7839	7857	7875	7893	7911		2 4 5	7	9	11			13	14	16
7-8	7928	7946	7964	7982	8000	8018	8036	8054	8071	8089		2 4 5	7	9	11			13	14	16
7-9	8107	8125	8142	8160	8178	8196	8213	8231	8249	8267		2 4 5	7	9	11			12	14	16
8-0	2-8284	8302	8320	8337	8355	8373	8390	8408	8425	8443	15	2 4 5	7	9	11			12	14	16
8-1	8460	8478	8496	8513	8531	8548	8566	8583	8601	8618		2 4 5	7	9	11			12	14	16
8-2	8636	8653	8671	8688	8705	8723	8740	8758	8775	8792		2 3 5	7	9	10			12	14	16
8-3	8810	8827	8844	8862	8879	8896	8914	8931	8948	8965		2 3 5	7	9	10			12	14	16
8-4	8983	9000	9017	9034	9052	9069	9086	9103	9120	9138	14	2 3 5	7	9	10			12	14	15
8-5	2-9155	9172	9189	9206	9223	9240	9257	9275	9292	9309		2 3 5	7	9	10			12	14	15
8-6	9326	9343	9360	9377	9394	9411	9428	9445	9462	9479		2 3 5	7	8	10			12	14	15
8-7	9496	9513	9530	9547	9563	9580	9597	9614	9631	9648		2 3 5	7	8	10			12	14	15
8-8	9665	9682	9698	9715	9732	9749	9766	9783	9799	9816	13	2 3 5	7	8	10			12	13	15
8-9	2-9833	9850	9866	9883	9900	9917	9933	9950	9967	9983		2 3 5	7	8	10			12	13	15
9-0	3-0000	0017	0033	0050	0067	0083	0100	0116	0133	0150		2 3 5	7	8	10			12	13	15
9-1	0166	0183	0199	0216	0232	0249	0265	0282	0299	0315		2 3 5	7	8	10			12	13	15
9-2	0332	0348	0364	0381	0397	0414	0430	0447	0463	0480	12	2 3 5	7	8	10			11	13	15
9-3	0496	0512	0529	0545	0561	0578	0594	0610	0627	0643		2 3 5	7	8	10			11	13	15
9-4	0659	0676	0692	0708	0725	0741	0757	0773	0790	0806		2 3 5	7	8	10			11	13	15
9-5	3-0822	0838	0854	0871	0887	0903	0919	0935	0952	0968		2 3 5	6	8	10			11	13	15
9-6	0984	1000	1016	1032	1048	1064	1081	1097	1113	1129	11	2 3 5	6	8	10			11	13	14
9-7	1145	1161	1177	1193	1209	1225	1241	1257	1273	1289		2 3 5	6	8	10			11	13	14
9-8	1305	1321	1337	1353	1369	1385	1401	1417	1432	1448		2 3 5	6	8	10			11	13	14
9-9	3-1464	1480	1496	1512	1528	1544	1559	1575	1591	1607		2 3 5	6	8	10			11	13	14

## PRIME NUMBERS GREATER THAN 1000

For prime numbers less than 1000 see table on page 28

1009	1063	1129	1217	1289	1367	1447	1499	1579	1637	1723	1801	1879	1979
1013	1069	1151	1223	1291	1373	1451	1511	1583	1657	1733	1811	1889	1987
1019	1087	1153	1229	1297	1381	1453	1523	1597	1663	1741	1823	1901	1993
1021	1091	1163	1231	1301	1399	1459	1531	1601	1667	1747	1831	1907	1997
1031	1093	1171	1237	1303	1409	1471	1543	1607	1669	1753	1847	1913	1999
1033	1097	1181	1249	1307	1423	1481	1549	1609	1693	1759	1861	1931	2003
1039	1103	1187	1259	1319	1427	1483	1553	1613	1697	1777	1867	1933	2011
1049	1109	1193	1277	1321	1429	1487	1559	1619	1699	1783	1871	1949	2017
1051	1117	1201	1279	1327	1433	1489	1567	1621	1709	1787	1873	1951	2027
1061	1123	1213	1283	1361	1439	1493	1571	1627	1721	1789	1877	1973	2029

[Continued on page 39]

x	·0	·1	·2	·3	·4	·5	·6	·7	·8	·9	Δ	ADD								
												1	2	3	4	5	6	7	8	9
10	3.162	3.178	3.194	3.209	3.225	3.240	3.256	3.271	3.286	3.302	16	2	3	5	6	8	10	11	13	14
11	3.317	3.332	3.347	3.362	3.376	3.391	3.406	3.421	3.435	3.450	15	1	3	4	6	7	9	10	12	13
12	3.464	3.479	3.493	3.507	3.521	3.536	3.550	3.564	3.578	3.592	14	1	3	4	6	7	8	10	11	13
13	3.606	3.619	3.633	3.647	3.661	3.674	3.688	3.701	3.715	3.728	13	1	3	4	5	7	8	10	11	12
14	3.742	3.755	3.768	3.782	3.795	3.808	3.821	3.834	3.847	3.860	12	1	3	4	5	6	7	8	9	10
15	3.873	3.886	3.899	3.912	3.924	3.937	3.950	3.962	3.975	3.987	11	1	2	3	4	5	6	7	8	9
16	4.000	4.012	4.025	4.037	4.050	4.062	4.074	4.087	4.099	4.111	10	1	2	3	4	5	6	7	8	9
17	4.123	4.135	4.147	4.159	4.171	4.183	4.195	4.207	4.219	4.231	9	1	2	3	4	5	6	7	8	9
18	4.243	4.254	4.266	4.278	4.290	4.301	4.313	4.324	4.336	4.347	8	1	2	3	4	5	6	7	8	9
19	4.359	4.370	4.382	4.393	4.405	4.416	4.427	4.438	4.450	4.461	7	1	2	3	4	5	6	7	8	9
20	4.472	4.483	4.494	4.506	4.517	4.528	4.539	4.550	4.561	4.572	6	1	2	3	4	5	6	7	8	9
21	4.583	4.593	4.604	4.615	4.626	4.637	4.648	4.658	4.669	4.680	5	1	2	3	4	5	6	7	8	9
22	4.690	4.701	4.712	4.722	4.733	4.743	4.754	4.764	4.775	4.785	4	1	2	3	4	5	6	7	8	9
23	4.796	4.806	4.817	4.827	4.837	4.848	4.858	4.868	4.879	4.889	3	1	2	3	4	5	6	7	8	9
24	4.899	4.909	4.919	4.930	4.940	4.950	4.960	4.970	4.980	4.990	2	1	2	3	4	5	6	7	8	9
25	5.000	5.010	5.020	5.030	5.040	5.050	5.060	5.070	5.079	5.089	1	1	2	3	4	5	6	7	8	9
26	5.099	5.109	5.119	5.128	5.138	5.148	5.158	5.167	5.177	5.187	16	1	2	3	4	5	6	7	8	9
27	5.196	5.206	5.215	5.225	5.235	5.244	5.254	5.263	5.273	5.282	15	1	2	3	4	5	6	7	8	9
28	5.292	5.301	5.310	5.320	5.329	5.339	5.348	5.357	5.367	5.376	14	1	2	3	4	5	6	7	7	8
29	5.385	5.394	5.404	5.413	5.422	5.431	5.441	5.450	5.459	5.468	13	1	2	3	4	5	6	6	7	8
30	5.477	5.486	5.495	5.505	5.514	5.523	5.532	5.541	5.550	5.559	12	1	2	3	4	5	5	6	7	8
31	5.568	5.577	5.586	5.595	5.604	5.613	5.621	5.630	5.639	5.648	11	1	2	3	4	4	5	6	7	8
32	5.657	5.666	5.675	5.683	5.692	5.701	5.710	5.718	5.727	5.736	10	1	2	3	4	4	5	6	7	8
33	5.745	5.753	5.762	5.771	5.779	5.788	5.797	5.805	5.814	5.822	9	1	2	3	3	4	4	5	6	7
34	5.831	5.840	5.848	5.857	5.865	5.874	5.882	5.891	5.899	5.908	8	1	2	3	3	4	4	5	6	7
35	5.916	5.925	5.933	5.941	5.950	5.958	5.967	5.975	5.983	5.992	7	1	2	3	3	4	4	5	6	7
36	6.000	6.008	6.017	6.025	6.033	6.042	6.050	6.058	6.066	6.075	6	1	2	2	3	3	4	4	5	6
37	6.083	6.091	6.099	6.107	6.116	6.124	6.132	6.140	6.148	6.156	5	1	2	2	3	3	4	4	5	6
38	6.164	6.173	6.181	6.189	6.197	6.205	6.213	6.221	6.229	6.237	4	1	2	2	3	3	4	4	5	6
39	6.245	6.253	6.261	6.269	6.277	6.285	6.293	6.301	6.309	6.317	3	1	2	2	3	3	4	4	5	6
40	6.325	6.332	6.340	6.348	6.356	6.364	6.372	6.380	6.387	6.395	2	1	2	2	3	3	4	4	5	6
41	6.403	6.411	6.419	6.427	6.434	6.442	6.450	6.458	6.465	6.473	1	1	2	2	3	3	4	4	5	6
42	6.481	6.488	6.496	6.504	6.512	6.519	6.527	6.535	6.542	6.550	16	1	2	2	3	3	4	4	5	6
43	6.557	6.565	6.573	6.580	6.588	6.595	6.603	6.611	6.618	6.626	15	1	2	2	3	3	4	4	5	6
44	6.633	6.641	6.648	6.656	6.663	6.671	6.678	6.686	6.693	6.701	14	1	2	2	3	3	4	4	5	6
45	6.708	6.716	6.723	6.731	6.738	6.745	6.753	6.760	6.768	6.775	13	1	1	2	3	3	4	4	5	6
46	6.782	6.790	6.797	6.804	6.812	6.819	6.826	6.834	6.841	6.848	12	1	1	2	3	3	4	4	5	6
47	6.856	6.863	6.870	6.877	6.885	6.892	6.899	6.907	6.914	6.921	11	1	1	2	3	3	4	4	5	6
48	6.928	6.935	6.943	6.950	6.957	6.964	6.971	6.979	6.986	6.993	10	1	1	2	3	3	4	4	5	6
49	7.000	7.007	7.014	7.021	7.029	7.036	7.043	7.050	7.057	7.064	9	1	1	2	3	3	4	4	5	6
50	7.071	7.078	7.085	7.092	7.099	7.106	7.113	7.120	7.127	7.134	8	1	1	2	3	3	4	4	5	6
51	7.141	7.148	7.155	7.162	7.169	7.176	7.183	7.190	7.197	7.204	7	1	1	2	3	3	4	4	5	6
52	7.211	7.218	7.225	7.232	7.239	7.246	7.253	7.259	7.266	7.273	6	1	1	2	3	3	4	4	5	6
53	7.280	7.287	7.294	7.301	7.308	7.314	7.321	7.328	7.335	7.342	5	1	1	2	3	3	4	4	5	6
54	7.348	7.355	7.362	7.369	7.376	7.382	7.389	7.396	7.403	7.409	4	1	1	2	3	3	4	4	5	6
55	7.416	7.423	7.430	7.436	7.443	7.450	7.457	7.463	7.470	7.477	3	1	1	2	3	3	4	4	5	6
56	7.483	7.490	7.497	7.503	7.510	7.517	7.523	7.530	7.537	7.543	2	1	1	2	3	3	4	4	5	6
57	7.550	7.556	7.563	7.570	7.576	7.583	7.589	7.596	7.603	7.609	1	1	1	2	3	3	4	4	5	6
58	7.616	7.622	7.629	7.635	7.642	7.649	7.655	7.662	7.668	7.675	16	1	1	2	3	3	4	4	5	6
59	7.681	7.688	7.694	7.701	7.707	7.714	7.720	7.727	7.733	7.740	15	1	1	2	3	3	4	4	5	6

This table is to be used for  $x=10.00$  to  $99.99$ , or for any number in that range multiplied by an even power of ten ( $10^2$ ,  $10^{-4}$ , etc.). When the decimal point in  $x$  is moved two places the decimal point of the corresponding square root moves one place in the same direction (e.g.,  $\sqrt{0.1234} = 0.3513$ ). The user may prefer to fix by inspection the first significant figure of the root and the place of the decimal point.



x	·0	·1	·2	·3	·4	·5	·6	·7	·8	·9	Δ	ADD								
												1	2	3	4	5	6	7	8	9
60	7-746	7-752	7-759	7-765	7-772	7-778	7-785	7-791	7-797	7-804	7	1	1	2	3	3	4	5	6	6
61	7-810	7-817	7-823	7-829	7-836	7-842	7-849	7-855	7-861	7-868	6	1	1	2	2	3	4	4	5	5
62	7-874	7-880	7-887	7-893	7-899	7-906	7-912	7-918	7-925	7-931	5	1	1	2	2	3	3	4	4	5
63	7-937	7-944	7-950	7-956	7-962	7-969	7-975	7-981	7-987	7-994	Only these proportional parts are needed on this page; for ordinary purposes the middle line can be used throughout.									
64	8-000	8-006	8-012	8-019	8-025	8-031	8-037	8-044	8-050	8-056										
65	8-062	8-068	8-075	8-081	8-087	8-093	8-099	8-106	8-112	8-118										
66	8-124	8-130	8-136	8-142	8-149	8-155	8-161	8-167	8-173	8-179										
67	8-185	8-191	8-198	8-204	8-210	8-216	8-222	8-228	8-234	8-240										
68	8-246	8-252	8-258	8-264	8-270	8-276	8-283	8-289	8-295	8-301										
69	8-307	8-313	8-319	8-325	8-331	8-337	8-343	8-349	8-355	8-361										
70	8-367	8-373	8-379	8-385	8-390	8-396	8-402	8-408	8-414	8-420	3389	3823	4261	4733						
71	8-426	8-432	8-438	8-444	8-450	8-456	8-462	8-468	8-473	8-479	3391	3833	4271	4751						
72	8-485	8-491	8-497	8-503	8-509	8-515	8-521	8-526	8-532	8-538	3407	3847	4273	4759						
73	8-544	8-550	8-556	8-562	8-567	8-573	8-579	8-585	8-591	8-597	3413	3851	4283	4783						
74	8-602	8-608	8-614	8-620	8-626	8-631	8-637	8-643	8-649	8-654	3433	3853	4289	4787						
75	8-660	8-666	8-672	8-678	8-683	8-689	8-695	8-701	8-706	8-712	3449	3863	4297	4789						
76	8-718	8-724	8-729	8-735	8-741	8-746	8-752	8-758	8-764	8-769	3457	3877	4327	4793						
77	8-775	8-781	8-786	8-792	8-798	8-803	8-809	8-815	8-820	8-826	3461	3881	4337	4799						
78	8-832	8-837	8-843	8-849	8-854	8-860	8-866	8-871	8-877	8-883	3463	3889	4339	4801						
79	8-888	8-894	8-899	8-905	8-911	8-916	8-922	8-927	8-933	8-939	3467	3907	4349	4813						
80	8-944	8-950	8-955	8-961	8-967	8-972	8-978	8-983	8-989	8-994	3469	3911	4357	4817						
81	9-000	9-006	9-011	9-017	9-022	9-028	9-033	9-039	9-044	9-050	3491	3917	4363	4831						
82	9-055	9-061	9-066	9-072	9-077	9-083	9-088	9-094	9-099	9-105	3499	3919	4373	4861						
83	9-110	9-116	9-121	9-127	9-132	9-138	9-143	9-149	9-154	9-160	3511	3923	4391	4871						
84	9-165	9-171	9-176	9-182	9-187	9-192	9-198	9-203	9-209	9-214	3517	3929	4397	4877						
85	9-220	9-225	9-230	9-236	9-241	9-247	9-252	9-257	9-263	9-268	3527	3931	4409	4889						
86	9-274	9-279	9-284	9-290	9-295	9-301	9-306	9-311	9-317	9-322	3529	3943	4421	4903						
87	9-327	9-333	9-338	9-343	9-349	9-354	9-359	9-365	9-370	9-375	3533	3947	4423	4909						
88	9-381	9-386	9-391	9-397	9-402	9-407	9-413	9-418	9-423	9-429	3539	3967	4441	4919						
89	9-434	9-439	9-445	9-450	9-455	9-460	9-466	9-471	9-476	9-482	3541	3989	4447	4931						
90	9-487	9-492	9-497	9-503	9-508	9-513	9-518	9-524	9-529	9-534	3547	4001	4451	4933						
91	9-539	9-545	9-550	9-555	9-560	9-566	9-571	9-576	9-581	9-586	3557	4003	4457	4937						
92	9-592	9-597	9-602	9-607	9-612	9-618	9-623	9-628	9-633	9-638	3559	4007	4463	4943						
93	9-644	9-649	9-654	9-659	9-664	9-670	9-675	9-680	9-685	9-690	3571	4013	4481	4951						
94	9-695	9-701	9-706	9-711	9-716	9-721	9-726	9-731	9-737	9-742	3581	4019	4483	4957						
95	9-747	9-752	9-757	9-762	9-767	9-772	9-778	9-783	9-788	9-793	3583	4021	4493	4967						
96	9-798	9-803	9-808	9-813	9-818	9-823	9-829	9-834	9-839	9-844	3593	4027	4507	4969						
97	9-849	9-854	9-859	9-864	9-869	9-874	9-879	9-884	9-889	9-894	3607	4049	4513	4973						
98	9-899	9-905	9-910	9-915	9-920	9-925	9-930	9-935	9-940	9-945	3613	4051	4517	4987						
99	9-950	9-955	9-960	9-965	9-970	9-975	9-980	9-985	9-990	9-995	3617	4057	4519	4993						
											3623	4073	4523	4999						
											3631	4079	4547	5003						
											3637	4091	4549	5009						
											3643	4093	4561	5011						
											3659	4099	4567	5021						
											3671	4111	4583	5023						

3389	3823	4261	4733
3391	3833	4271	4751
3407	3847	4273	4759
3413	3851	4283	4783
3433	3853	4289	4787
3449	3863	4297	4789
3457	3877	4327	4793
3461	3881	4337	4799
3463	3889	4339	4801
3467	3907	4349	4813
3469	3911	4357	4817
3491	3917	4363	4831
3499	3919	4373	4861
3511	3923	4391	4871
3517	3929	4397	4877
3527	3931	4409	4889
3529	3943	4421	4903
3533	3947	4423	4909
3539	3967	4441	4919
3541	3989	4447	4931
3547	4001	4451	4933
3557	4003	4457	4937
3559	4007	4463	4943
3571	4013	4481	4951
3581	4019	4483	4957
3583	4021	4493	4967
3593	4027	4507	4969
3607	4049	4513	4973
3613	4051	4517	4987
3617	4057	4519	4993
3623	4073	4523	4999
3631	4079	4547	5003
3637	4091	4549	5009
3643	4093	4561	5011
3659	4099	4567	5021
3671	4111	4583	5023
3673	4127	4591	5039
3677	4129	4597	5051
3691	4133	4603	5059
3697	4139	4621	5077
3701	4153	4637	5081
3709	4157	4639	5087
3719	4159	4643	5099
3727	4177	4649	5101
3733	4201	4651	5107
3739	4211	4657	5113
3761	4217	4663	5119
3767	4219	4673	5147
3769	4229	4679	5153
3779	4231	4691	5167
3793	4241	4703	5171
3797	4243	4721	5179
3803	4253	4723	5189
3821	4259	4729	5197

PRIME NUMBERS—continued from page 37

2039	2141	2269	2371	2467	2609	2699	2797	2909	3037	3169	3299
2053	2143	2273	2377	2473	2617	2707	2801	2917	3041	3181	3301
2063	2153	2281	2381	2477	2621	2711	2803	2927	3049	3187	3307
2069	2161	2287	2383	2503	2633	2713	2819	2939	3061	3191	3313
2081	2179	2293	2389	2521	2647	2719	2833	2953	3067	3203	3319
2083	2203	2297	2393	2531	2657	2729	2837	2957	3079	3209	3323
2087	2207	2309	2399	2539	2659	2731	2843	2963	3083	3217	3329
2089	2213	2311	2411	2543	2663	2741	2851	2969	3089	3221	3331
2099	2221	2333	2417	2549	2671	2749	2857	2971	3109	3229	3343
2111	2237	2339	2423	2551	2677	2753	2861	2999	3119	3251	3347
2113	2239	2341	2437	2557	2683	2767	2879	3001	3121	3253	3359
2129	2243	2347	2441	2579	2687	2777	2887	3011	3137	3257	3361
2131	2251	2351	2447	2591	2689	2789	2897	3019	3163	3259	3371
2137	2267	2357	2459	2593	2693	2791	2903	3023	3167	3271	3373

x	0	1	2	3	4	5	6	7	8	9	$\Delta$	ADD								
												1	2	3	4	5	6	7	8	9
1-0	1-000	1-030	1-061	1-093	1-125	1-158	1-191	1-225	1-260	1-295		3	7	10	13	17	20	23	26	30
1-1	1-331	1-368	1-405	1-443	1-482	1-521	1-561	1-602	1-643	1-685		4	8	12	16	20	24	28	32	36
1-2	1-728	1-772	1-816	1-861	1-907	1-953	2-000	2-048	2-097	2-147		5	9	14	19	23	28	33	38	42
1-3	2-197	2-248	2-300	2-353	2-406	2-460	2-515	2-571	2-628	2-686		5	11	16	22	27	33	38	44	49
1-4	2-744	2-803	2-863	2-924	2-986	3-049	3-112	3-177	3-242	3-308		6	13	19	25	32	38	44	50	57
1-5	3-375	3-443	3-512	3-582	3-652	3-724	3-796	3-870	3-944	4-020		7	14	22	29	36	43	50	58	65
1-6	4-096	4-173	4-252	4-331	4-411	4-492	4-574	4-657	4-742	4-827		8	16	25	33	41	49	57	65	74
1-7	4-913	5-000	5-088	5-178	5-268	5-359	5-452	5-545	5-640	5-735		9	18	28	37	46	55	64	74	83
1-8	5-832	5-930	6-029	6-128	6-230	6-332	6-435	6-539	6-645	6-751		10	21	31	41	51	62	72	82	92
1-9	6-859	6-968	7-078	7-189	7-301	7-415	7-530	7-645	7-762	7-881		11	23	34	46	57	68	80	91	103
2-0	8-000	8-121	8-242	8-365	8-490	8-615	8-742	8-870	8-999	9-129		13	25	38	50	63	76	88	101	113
2-1	9-261	9-394	9-528	9-664	9-800	9-938						14	27	41	54	68	81	95	108	122
2-1						10-08						1	3	4	6	7	9	10	11	13
2-2	10-65	10-79	10-94	11-09	11-24	11-39	11-54	11-70	11-85	12-01		2	3	5	6	8	9	11	12	14
2-3	12-17	12-33	12-49	12-65	12-81	12-98	13-14	13-31	13-48	13-65		2	3	5	7	8	10	12	13	15
2-4	13-82	14-00	14-17	14-35	14-53	14-71	14-89	15-07	15-25	15-44		2	4	5	7	9	11	13	14	16
2-5	15-62	15-81	16-00	16-19	16-39	16-58	16-78	16-97	17-17	17-37		2	4	6	8	10	12	14	16	18
2-6	17-58	17-78	17-98	18-19	18-40	18-61	18-82	19-03	19-25	19-47		2	4	6	8	11	13	15	17	19
2-7	19-68	19-90	20-12	20-35	20-57	20-80	21-02	21-25	21-48	21-72		2	5	7	9	11	14	16	18	20
2-8	21-95	22-19	22-43	22-67	22-91	23-15	23-39	23-64	23-89	24-14		2	5	7	10	12	15	17	20	22
2-9	24-39	24-64	24-90	25-15	25-41	25-67	25-93	26-20	26-46	26-73		3	5	8	10	13	16	18	21	23
3-0	27-00	27-27	27-54	27-82	28-09	28-37	28-65	28-93	29-22	29-50		3	6	8	11	14	17	20	22	25
3-1	29-79	30-08	30-37	30-66	30-96	31-26	31-55	31-86	32-16	32-46		3	6	9	12	15	18	21	24	27
3-2	32-77	33-08	33-39	33-70	34-01	34-33	34-65	34-97	35-29	35-61		3	6	10	13	16	19	22	25	29
3-3	35-94	36-26	36-59	36-93	37-26	37-60	37-93	38-27	38-61	38-96		3	7	10	13	17	20	24	27	30
3-4	39-30	39-65	40-00	40-35	40-71	41-06	41-42	41-78	42-14	42-51		4	7	11	14	18	21	25	29	32
3-5	42-88	43-24	43-61	43-99	44-36	44-74	45-12	45-50	45-88	46-27		4	8	11	15	19	23	26	30	34
3-6	46-66	47-05	47-44	47-83	48-23	48-63	49-03	49-43	49-84	50-24		4	8	12	16	20	24	28	32	36
3-7	50-65	51-06	51-48	51-90	52-31	52-73	53-16	53-58	54-01	54-44		4	8	13	17	21	25	30	34	38
3-8	54-87	55-31	55-74	56-18	56-62	57-07	57-51	57-96	58-41	58-86		4	9	13	18	22	27	31	36	40
3-9	59-32	59-78	60-24	60-70	61-16	61-63	62-10	62-57	63-04	63-52		5	9	14	19	23	28	33	37	42
4-0	64-00	64-48	64-96	65-45	65-94	66-43	66-92	67-42	67-92	68-42		5	10	15	20	25	30	34	39	44
4-1	68-92	69-43	69-93	70-44	70-96	71-47	71-99	72-51	73-03	73-56		5	10	16	21	26	31	36	41	47
4-2	74-09	74-62	75-15	75-69	76-23	76-77	77-31	77-85	78-40	78-95		5	11	16	22	27	33	38	43	49
4-3	79-51	80-06	80-62	81-18	81-75	82-31	82-88	83-45	84-03	84-60		6	11	17	23	28	34	40	45	51
4-4	85-18	85-77	86-35	86-94	87-53	88-12	88-72	89-31	89-92	90-52		6	12	18	24	30	36	42	48	53
4-5	91-12	91-73	92-35	92-96	93-58	94-20	94-82	95-44	96-07	96-70		6	12	19	25	31	37	43	50	56
4-6	97-34	97-97	98-61	99-25	99-90							6	13	19	26	32	38	45	51	58
4-6					100-5	101-2		101-8	102-5	103-2		1	1	2	3	3	4	5	5	6
4-7	103-8	104-5	105-2	105-8	106-5	107-2	107-9	108-5	109-2	109-9		1	1	2	3	3	4	5	5	6
4-8	110-6	111-3	112-0	112-7	113-4	114-1	114-8	115-5	116-2	116-9		1	1	2	3	4	4	5	6	6
4-9	117-6	118-4	119-1	119-8	120-6	121-3	122-0	122-8	123-5	124-3		1	1	2	3	4	4	5	6	7
5-0	125-0	125-8	126-5	127-3	128-0	128-8	129-6	130-3	131-1	131-9		1	2	2	3	4	5	5	6	7
5-1	132-7	133-4	134-2	135-0	135-8	136-6	137-4	138-2	139-0	139-8		1	2	2	3	4	5	6	6	7
5-2	140-6	141-4	142-2	143-1	143-9	144-7	145-5	146-4	147-2	148-0		1	2	2	3	4	5	6	7	7
5-3	148-9	149-7	150-6	151-4	152-3	153-1	154-0	154-9	155-7	156-6		1	2	3	3	4	5	6	7	8
5-4	157-5	158-3	159-2	160-1	161-0	161-9	162-8	163-7	164-6	165-5		1	2	3	4	4	5	6	7	8

For higher accuracy in interpolation use P.P.s based on actual differences. See Table on inside front cover.

When the decimal point in  $x$  is moved one place, the decimal point in  $x^3$  moves three places in the same direction, thus:

$$(1.234)^3 = 1.880 \text{ approx.}$$

$$(12.34)^3 = 1880 \text{ approx.}$$

$$(0.1234)^3 = 0.00188 \text{ approx.}$$

x										Δ	ADD										
	0	1	2	3	4	5	6	7	8		9	1	2	3	4	5	6	7	8	9	
5.5	166.4	167.3	168.2	169.1	170.0	171.0	171.9	172.8	173.7	174.7	10	1	2	3	4	5	6	6	7	8	
5.6	175.6	176.6	177.5	178.5	179.4	180.4	181.3	182.3	183.3	184.2		1	2	3	4	5	6	7	8	9	
5.7	185.2	186.2	187.1	188.1	189.1	190.1	191.1	192.1	193.1	194.1		1	2	3	4	5	6	7	8	9	
5.8	195.1	196.1	197.1	198.2	199.2	200.2	201.2	202.3	203.3	204.3		1	2	3	4	5	6	7	8	9	
5.9	205.4	206.4	207.5	208.5	209.6	210.6	211.7	212.8	213.8	214.9		1	2	3	4	5	6	7	8	10	
6.0	216.0	217.1	218.2	219.3	220.3	221.4	222.5	223.6	224.8	225.9	11	1	2	3	4	6	7	8	9	10	
6.1	227.0	228.1	229.2	230.3	231.5	232.6	233.7	234.9	236.0	237.2		1	2	3	5	6	7	8	9	10	
6.2	238.3	239.5	240.6	241.8	243.0	244.1	245.3	246.5	247.7	248.9		1	2	4	5	6	7	8	9	11	
6.3	250.0	251.2	252.4	253.6	254.8	256.0	257.3	258.5	259.7	260.9		1	2	4	5	6	7	8	10	11	
6.4	262.1	263.4	264.6	265.8	267.1	268.3	269.6	270.8	272.1	273.4		1	3	4	5	6	8	9	10	11	
6.5	274.6	275.9	277.2	278.4	279.7	281.0	282.3	283.6	284.9	286.2	13	1	3	4	5	6	8	9	10	12	
6.6	287.5	288.8	290.1	291.4	292.8	294.1	295.4	296.7	298.1	299.4		1	3	4	5	7	8	9	11	12	
6.7	300.8	302.1	303.5	304.8	306.2	307.5	308.9	310.3	311.7	313.0		1	3	4	5	7	8	10	11	12	
6.8	314.4	315.8	317.2	318.6	320.0	321.4	322.8	324.2	325.7	327.1		1	3	4	6	7	8	10	11	13	
6.9	328.5	329.9	331.4	332.8	334.3	335.7	337.2	338.6	340.1	341.5		1	3	4	6	7	9	10	12	13	
7.0	343.0	344.5	345.9	347.4	348.9	350.4	351.9	353.4	354.9	356.4	15	1	3	4	6	7	9	10	12	13	
7.1	357.9	359.4	360.9	362.5	364.0	365.5	367.1	368.6	370.1	371.7		2	3	5	6	8	9	11	12	14	
7.2	373.2	374.8	376.4	377.9	379.5	381.1	382.7	384.2	385.8	387.4		2	3	5	6	8	9	11	13	14	
7.3	389.0	390.6	392.2	393.8	395.4	397.1	398.7	400.3	401.9	403.6		1	6	2	3	5	6	8	10	11	13
7.4	405.2	406.9	408.5	410.2	411.8	413.5	415.2	416.8	418.5	420.2		2	3	5	7	8	10	12	13	15	
7.5	421.9	423.6	425.3	427.0	428.7	430.4	432.1	433.8	435.5	437.2	17	2	3	5	7	9	10	12	14	15	
7.6	439.0	440.7	442.5	444.2	445.9	447.7	449.5	451.2	453.0	454.8		2	4	5	7	9	11	12	14	16	
7.7	456.5	458.3	460.1	461.9	463.7	465.5	467.3	469.1	470.9	472.7		2	4	5	7	9	11	13	14	16	
7.8	474.6	476.4	478.2	480.0	481.9	483.7	485.6	487.4	489.3	491.2		2	4	6	7	9	11	13	15	17	
7.9	493.0	494.9	496.8	498.7	500.6	502.5	504.4	506.3	508.2	510.1		1	9	2	4	6	8	10	11	13	15
8.0	512.0	513.9	515.8	517.8	519.7	521.7	523.6	525.6	527.5	529.5	20	2	4	6	8	10	12	14	16	17	
8.1	531.4	533.4	535.4	537.4	539.4	541.3	543.3	545.3	547.3	549.4		2	4	6	8	10	12	14	16	18	
8.2	551.4	553.4	555.4	557.4	559.5	561.5	563.6	565.6	567.7	569.7		2	4	6	8	10	12	14	16	18	
8.3	571.8	573.9	575.9	578.0	580.1	582.2	584.3	586.4	588.5	590.6		2	4	6	8	10	13	15	17	19	
8.4	592.7	594.8	596.9	599.1	601.2	603.4	605.5	607.6	609.8	612.0		2	4	6	9	11	13	15	17	19	
8.5	614.1	616.3	618.5	620.7	622.8	625.0	627.2	629.4	631.6	633.8	22	2	4	7	9	11	13	15	18	20	
8.6	636.1	638.3	640.5	642.7	645.0	647.2	649.5	651.7	654.0	656.2		2	4	7	9	11	13	16	18	20	
8.7	658.5	660.8	663.1	665.3	667.6	669.9	672.2	674.5	676.8	679.2		2	5	7	9	12	14	16	18	21	
8.8	681.5	683.8	686.1	688.5	690.8	693.2	695.5	697.9	700.2	702.6		2	5	7	9	12	14	16	19	21	
8.9	705.0	707.3	709.7	712.1	714.5	716.9	719.3	721.7	724.2	726.6		2	5	7	10	12	14	17	19	22	
9.0	729.0	731.4	733.9	736.3	738.8	741.2	743.7	746.1	748.6	751.1	25	2	5	7	10	12	15	17	20	22	
9.1	753.6	756.1	758.6	761.0	763.6	766.1	768.6	771.1	773.6	776.2		3	5	8	10	13	15	18	20	23	
9.2	778.7	781.2	783.8	786.3	788.9	791.5	794.0	796.6	799.2	801.8		3	5	8	10	13	15	18	21	23	
9.3	804.4	807.0	809.6	812.2	814.8	817.4	820.0	822.7	825.3	827.9		2	6	3	5	8	10	13	16	18	21
9.4	830.6	833.2	835.9	838.6	841.2	843.9	846.6	849.3	852.0	854.7		2	7	3	5	8	11	13	16	19	21
9.5	857.4	860.1	862.8	865.5	868.3	871.0	873.7	876.5	879.2	882.0	28	3	5	8	11	14	16	19	22	25	
9.6	884.7	887.5	890.3	893.1	895.8	898.6	901.4	904.2	907.0	909.9		3	6	8	11	14	17	20	22	25	
9.7	912.7	915.5	918.3	921.2	924.0	926.9	929.7	932.6	935.4	938.3		3	6	9	11	14	17	20	23	26	
9.8	941.2	944.1	947.0	949.9	952.8	955.7	958.6	961.5	964.4	967.4		2	9	3	6	9	12	15	17	20	23
9.9	970.3	973.2	976.2	979.1	982.1	985.1	988.0	991.0	994.0	997.0		3	6	9	12	15	18	21	24	27	

When using this table inversely to find the cube root of a number outside the table range, care must be taken to enter the table at the appropriate place. First divide or multiply the given number by 103.

Examples.

$$\sqrt[3]{1234} = \sqrt[3]{1.234 \times 10^3} = 1.073 \times 10 = 10.73$$

$$\sqrt[3]{12345} = \sqrt[3]{12.345 \times 10^3} = 2.311 \times 10 = 23.11$$

$$\sqrt[3]{123456} = \sqrt[3]{123.456 \times 10^3} = 4.979 \times 10 = 49.79$$

$$\sqrt[3]{0.01234} = \sqrt[3]{12.34 \times 10^{-3}} = 2.311 \times 10^{-1} = 0.2311$$



x	0	1	2	3	4	5	6	7	8	9	Δ	SUBTRACT										
												1	2	3	4	5	6	7	8	9		
1-0	1-0000	0-9901	9804	9709								See Table inside front cover.	10	19	29	39	49	58	68	78	87	
				9709	9615	9524	9434						9	18	28	37	46	55	64	73	83	
1-1	0-9091	9009	8929	8850				9346	9259	9174			9	17	26	34	43	51	60	69	77	
				8850	8772	8696	8621						8	16	24	32	40	48	56	64	72	
1-2	-8333	8264	8197	8130				8547	8475	8403			8	15	23	31	38	46	53	61	69	
				8130	8065	8000	7937						7	14	22	29	36	43	50	58	65	
1-3	-7692	7634	7576	7519				7874	7812	7752			7	14	20	27	34	41	47	54	61	
				7519	7463	7407	7353						6	13	19	26	32	39	45	51	58	
1-4	-7143	7092	7042	6993				7299	7246	7194			6	12	18	25	31	37	43	49	55	
				6993	6944	6897	6849						6	12	17	23	29	35	40	46	52	
1-5	0-6667	6623	6579	6536				6803	6757	6711			6	11	17	22	28	33	39	44	50	
					6494	6452	6410						5	10	16	21	26	31	37	42	47	
1-6	-6250	6211	6173	6135				6369	6329	6289			5	10	15	20	24	28	32	36	40	
					6098	6061	6024						4	8	11	15	19	23	26	30	34	
1-7	-5882	5848	5814	5780				5988	5952	5917			4	7	11	14	18	21	25	28	32	
					5747	5714	5682						3	7	10	13	17	20	24	27	30	
1-8	-5556	5525	5495	5464				5650	5618	5587			3	6	9	13	16	19	22	25	28	
					5435	5405	5376						3	6	9	12	15	18	21	24	27	
1-9	-5263	5236	5208	5181				5348	5319	5291			3	6	9	11	14	17	20	23	26	
					5155	5128	5102						3	5	8	11	14	16	19	22	24	
2-0	0-5000	4975	4950	4926				4831	4808	4785	24		2	5	7	10	12	14	17	19	22	
2-1	-4762	4739	4717	4695				4608	4587	4566	22		2	4	7	9	11	13	15	18	20	
2-2	-4545	4525	4505	4484				4405	4386	4367	20		2	4	6	8	10	12	14	16	18	
2-3	-4348	4329	4310	4292				4219	4202	4184	18		2	4	5	7	9	11	13	14	16	
2-4	-4167	4149	4132	4115				4049	4032	4016	17		2	3	5	7	8	10	12	14	15	
2-5	0-4000	3984	3968	3953				3891	3876	3861	15		2	3	5	6	8	9	11	12	14	
2-6	-3846	3831	3817	3802				3745	3731	3717	14		1	3	4	6	7	8	10	11	13	
2-7	-3704	3690	3676	3663				3610	3597	3584	13		1	3	4	5	7	8	9	10	12	
2-8	-3571	3559	3546	3534				3484	3472	3460	12		1	2	4	5	6	7	8	10	11	
2-9	-3448	3436	3425	3413				3367	3356	3344	11		1	2	3	4	6	7	8	9	10	
3-0	0-3333	3322	3311	3300				3257	3247	3236			10	1	2	3	4	5	6	7	9	10
3-1	-3226	3215	3205	3195				3155	3145	3135				1	2	3	4	5	6	7	8	9
3-2	-3125	3115	3106	3096				3058	3049	3040		1		2	3	4	5	6	7	8	9	
3-3	-3030	3021	3012	3003				2967	2959	2950		9		1	2	3	4	4	5	6	7	8
3-4	-2941	2933	2924	2915				2882	2874	2865			1	2	3	3	4	5	6	7	8	
3-5	0-2857	2849	2841	2833				2801	2793	2786		8	1	2	2	3	4	5	6	6	7	
3-6	-2778	2770	2762	2755				2725	2717	2710			1	2	2	3	4	4	5	6	7	
3-7	-2703	2695	2688	2681				2653	2646	2639		7	1	1	2	3	4	4	5	6	6	
3-8	-2632	2625	2618	2611				2584	2577	2571			1	1	2	3	3	4	5	5	6	
3-9	-2564	2558	2551	2545				2519	2513	2506			1	1	2	3	3	4	4	5	6	
4-0	0-2500	2494	2488	2481				2457	2451	2445		6	1	1	2	2	3	4	4	5	5	
4-1	-2439	2433	2427	2421				2398	2392	2387			1	1	2	2	3	3	4	4	5	5
4-2	-2381	2375	2370	2364				2342	2336	2331			1	1	2	2	3	3	4	4	5	
4-3	-2326	2320	2315	2309				2288	2283	2278			1	1	2	2	3	3	4	4	5	
4-4	-2273	2268	2262	2257				2237	2232	2227		5	1	1	2	2	3	3	4	4	5	
4-5	0-2222	2217	2212	2208				2188	2183	2179			0	1	1	2	2	3	3	4	4	
4-6	-2174	2169	2165	2160				2141	2137	2132			0	1	1	2	2	3	3	4	4	
4-7	-2128	2123	2119	2114				2096	2092	2088			0	1	1	2	2	3	3	4	4	
4-8	-2083	2079	2075	2070				2053	2049	2045			0	1	1	2	2	3	3	4	4	
4-9	0-2041	2037	2033	2028				2012	2008	2004		4	0	1	1	2	2	2	3	3	4	

For each movement of one place in the decimal point in  $x$ , the decimal point in  $x^{-1}$  moves one place in the opposite direction.



x	0	1	2	3	4	5	6	7	8	9	Δ	SUBTRACT								
												1	2	3	4	5	6	7	8	9
5-0	0-2000	1996	1992	1988	1984	1980	1976	1972	1969	1965	4	0	1	1	2	2	2	3	3	4
5-1	-1961	1957	1953	1949	1946	1942	1938	1934	1931	1927		0	1	1	2	2	2	3	3	3
5-2	-1923	1919	1916	1912	1908	1905	1901	1898	1894	1890		0	1	1	1	2	2	3	3	3
5-3	-1887	1883	1880	1876	1873	1869	1866	1862	1859	1855		0	1	1	1	2	2	2	3	3
5-4	-1852	1848	1845	1842	1838	1835	1832	1828	1825	1821	3	0	1	1	1	2	2	2	3	3
5-5	0-1818	1815	1812	1808	1805	1802	1799	1795	1792	1789		0	1	1	1	2	2	2	3	3
5-6	-1786	1783	1779	1776	1773	1770	1767	1764	1761	1757		0	1	1	1	2	2	2	3	3
5-7	-1754	1751	1748	1745	1742	1739	1736	1733	1730	1727		0	1	1	1	1	2	2	2	3
5-8	-1724	1721	1718	1715	1712	1709	1706	1704	1701	1698	2	0	1	1	1	1	2	2	2	3
5-9	-1695	1692	1689	1686	1684	1681	1678	1675	1672	1669		0	1	1	1	1	2	2	2	3
6-0	0-1667	1664	1661	1658	1656	1653	1650	1647	1645	1642		0	1	1	1	1	2	2	2	3
6-1	-1639	1637	1634	1631	1629	1626	1623	1621	1618	1616		0	1	1	1	1	2	2	2	3
6-2	-1613	1610	1608	1605	1603	1600	1597	1595	1592	1590	1	0	1	1	1	1	2	2	2	3
6-3	-1587	1585	1582	1580	1577	1575	1572	1570	1567	1565		0	0	1	1	1	2	2	2	3
6-4	-1562	1560	1558	1555	1553	1550	1548	1546	1543	1541		0	0	1	1	1	1	2	2	3
6-5	0-1538	1536	1534	1531	1529	1527	1524	1522	1520	1517		0	0	1	1	1	1	2	2	3
6-6	-1515	1513	1511	1508	1506	1504	1502	1499	1497	1495	1	0	0	1	1	1	1	2	2	3
6-7	-1493	1490	1488	1486	1484	1481	1479	1477	1475	1473		0	0	1	1	1	1	2	2	3
6-8	-1471	1468	1466	1464	1462	1460	1458	1456	1453	1451		0	0	1	1	1	1	2	2	3
6-9	-1449	1447	1445	1443	1441	1439	1437	1435	1433	1431		0	0	1	1	1	1	1	2	3
7-0	0-1429	1427	1425	1422	1420	1418	1416	1414	1412	1410	1	0	0	1	1	1	1	1	2	3
7-1	-1408	1406	1404	1403	1401	1399	1397	1395	1393	1391		0	0	1	1	1	1	1	2	3
7-2	-1389	1387	1385	1383	1381	1379	1377	1376	1374	1372		0	0	1	1	1	1	1	2	3
7-3	-1370	1368	1366	1364	1362	1361	1359	1357	1355	1353		0	0	1	1	1	1	1	2	3
7-4	-1351	1350	1348	1346	1344	1342	1340	1339	1337	1335	1	0	0	1	1	1	1	1	2	3
7-5	0-1333	1332	1330	1328	1326	1325	1323	1321	1319	1318		0	0	1	1	1	1	1	1	2
7-6	-1316	1314	1312	1311	1309	1307	1305	1304	1302	1300		0	0	1	1	1	1	1	1	2
7-7	-1299	1297	1295	1294	1292	1290	1289	1287	1285	1284		0	0	1	1	1	1	1	1	2
7-8	-1282	1280	1279	1277	1276	1274	1272	1271	1269	1267	1	0	0	0	1	1	1	1	1	1
7-9	-1266	1264	1263	1261	1259	1258	1256	1255	1253	1252		0	0	0	1	1	1	1	1	1
8-0	0-1250	1248	1247	1245	1244	1242	1241	1239	1238	1236		0	0	0	1	1	1	1	1	1
8-1	-1235	1233	1232	1230	1229	1227	1225	1224	1222	1221		0	0	0	1	1	1	1	1	1
8-2	-1220	1218	1217	1215	1214	1212	1211	1209	1208	1206	1	0	0	0	1	1	1	1	1	1
8-3	-1205	1203	1202	1200	1199	1198	1196	1195	1193	1192		0	0	0	1	1	1	1	1	1
8-4	-1190	1189	1188	1186	1185	1183	1182	1181	1179	1178		0	0	0	1	1	1	1	1	1
8-5	0-1176	1175	1174	1172	1171	1170	1168	1167	1166	1164		0	0	0	1	1	1	1	1	1
8-6	-1163	1161	1160	1159	1157	1156	1155	1153	1152	1151	1	0	0	0	1	1	1	1	1	1
8-7	-1149	1148	1147	1145	1144	1143	1142	1140	1139	1138		0	0	0	1	1	1	1	1	1
8-8	-1136	1135	1134	1133	1131	1130	1129	1127	1126	1125		0	0	0	1	1	1	1	1	1
8-9	-1124	1122	1121	1120	1119	1117	1116	1115	1114	1112		0	0	0	1	1	1	1	1	1
9-0	0-1111	1110	1109	1107	1106	1105	1104	1103	1101	1100	1	0	0	0	0	1	1	1	1	1
9-1	-1099	1098	1096	1095	1094	1093	1092	1091	1089	1088		0	0	0	0	1	1	1	1	1
9-2	-1087	1086	1085	1083	1082	1081	1080	1079	1078	1076		0	0	0	0	1	1	1	1	1
9-3	-1075	1074	1073	1072	1071	1070	1068	1067	1066	1065		0	0	0	0	1	1	1	1	1
9-4	-1064	1063	1062	1060	1059	1058	1057	1056	1055	1054	1	0	0	0	0	1	1	1	1	1
9-5	0-1053	1052	1050	1049	1048	1047	1046	1045	1044	1043		0	0	0	0	1	1	1	1	1
9-6	-1042	1041	1040	1038	1037	1036	1035	1034	1033	1032		0	0	0	0	1	1	1	1	1
9-7	-1031	1030	1029	1028	1027	1026	1025	1024	1022	1021		0	0	0	0	1	1	1	1	1
9-8	-1020	1019	1018	1017	1016	1015	1014	1013	1012	1011	1	0	0	0	0	1	1	1	1	1
9-9	0-1010	1009	1008	1007	1006	1005	1004	1003	1002	1001		0	0	0	0	1	1	1	1	1

x	0	1	2	3	4	5	6	7	8	9	A	ADD								
												1	2	3	4	5	6	7	8	9
1.0	0.0000	0100	0198	0296	0392	0488		0677	0770	0862		10	20	29	39	49	59	68	78	88
1.1	-0953	1044	1133	1222	1310	1398	0488 0583	1570	1655	1740		9	19	28	37	46	56	65	74	84
1.2	-1823	1906	1989	2070	2151	2231	1398 1484	2390	2469	2546		8	17	26	34	42	51	60	68	76
1.3	-2624	2700	2776	2852	2927	3001	2231 2311	3148	3221	3293		8	16	24	33	41	49	57	65	73
1.4	-3365	3436	3507	3577	3646	3716	3001 3075	3853	3920	3988		8	16	24	31	39	47	55	63	71
						3716 3784						8	15	23	30	38	45	53	60	68
1.5	0.4055	4121	4187	4253	4318	4383	4447	4511	4574	4637		7	15	22	29	36	44	51	58	66
1.6	-4700	4762	4824	4886	4947	5008	5068	5128	5188	5247		7	14	21	28	35	42	49	56	63
1.7	-5306	5365	5423	5481	5539	5596	5653	5710	5766	5822		7	14	20	27	34	41	47	54	61
1.8	-5878	5933	5988	6043	6098	6152	6206	6259	6313	6366		6	13	19	26	32	39	45	52	58
1.9	-6419	6471	6523	6575	6627	6678	6729	6780	6831	6881		6	12	18	24	30	36	42	48	55
2.0	0.6931	6981	7031	7080	7129	7178	7227	7275	7324	7372		6	11	17	23	29	34	40	46	51
2.1	-7419	7467	7514	7561	7608	7655	7701	7747	7793	7839		5	10	15	20	25	30	35	40	45
2.2	-7885	7930	7975	8020	8065	8109	8154	8198	8242	8286		4	9	13	18	22	27	31	36	40
2.3	-8329	8372	8416	8459	8502	8544	8587	8629	8671	8713		4	9	13	17	21	26	30	34	38
2.4	-8755	8796	8838	8879	8920	8961	9002	9042	9083	9123		4	8	12	16	20	24	29	33	37
2.5	0.9163	9203	9243	9282	9322	9361	9400	9439	9478	9517		4	8	12	16	20	23	27	31	35
2.6	-9555	9594	9632	9670	9708	9746	9783	9821	9858	9895	37	4	7	11	15	19	23	26	30	34
2.7	0.9933	9969	1.0006	0043	0080	0116	0152	0188	0225	0260	36	4	7	11	14	18	22	25	29	33
2.8	1.0296	0332	0367	0403	0438	0473	0508	0543	0578	0613	35	4	7	11	14	18	21	25	28	32
2.9	-0647	0682	0716	0750	0784	0818	0852	0886	0919	0953	34	3	7	10	14	17	20	24	27	31
3.0	1.0986	1019	1053	1086	1119	1151	1184	1217	1249	1282	33	3	7	10	13	16	20	23	26	30
3.1	-1314	1346	1378	1410	1442	1474	1506	1537	1569	1600	32	3	6	10	13	16	19	22	26	29
3.2	-1632	1663	1694	1725	1756	1787	1817	1848	1878	1909	31	3	6	9	12	15	19	22	25	28
3.3	-1939	1969	2000	2030	2060	2090	2119	2149	2179	2208	30	3	6	9	12	15	18	21	24	27
3.4	-2238	2267	2296	2326	2355	2384	2413	2442	2470	2499	29	3	6	9	12	14	17	20	23	26
3.5	1.2528	2556	2585	2613	2641	2669	2698	2726	2754	2782	28	3	6	8	11	14	17	20	22	25
3.6	-2809	2837	2865	2892	2920	2947	2975	3002	3029	3056	27	3	5	8	11	14	16	19	22	24
3.7	-3083	3110	3137	3164	3191	3218	3244	3271	3297	3324		3	5	8	11	13	16	19	21	24
3.8	-3350	3376	3403	3429	3455	3481	3507	3533	3558	3584	26	3	5	8	10	13	16	18	21	23
3.9	-3610	3635	3661	3686	3712	3737	3762	3788	3813	3838	25	3	5	8	10	13	15	18	20	23
4.0	1.3863	3888	3913	3938	3962	3987	4012	4036	4061	4085		2	5	7	10	12	15	17	20	22
4.1	-4110	4134	4159	4183	4207	4231	4255	4279	4303	4327	24	2	5	7	10	12	14	17	19	22
4.2	-4351	4375	4398	4422	4446	4469	4493	4516	4540	4563		2	5	7	9	12	14	16	19	21
4.3	-4586	4609	4633	4656	4679	4702	4725	4748	4770	4793	23	2	5	7	9	12	14	16	18	21
4.4	-4816	4839	4861	4884	4907	4929	4951	4974	4996	5019		2	4	7	9	11	14	16	18	20
4.5	1.5041	5063	5085	5107	5129	5151	5173	5195	5217	5239	22	2	4	7	9	11	13	15	18	20
4.6	-5261	5282	5304	5326	5347	5369	5390	5412	5433	5454		2	4	6	9	11	13	15	17	19
4.7	-5476	5497	5518	5539	5560	5581	5602	5623	5644	5665	21	2	4	6	8	10	13	15	17	19
4.8	-5686	5707	5728	5748	5769	5790	5810	5831	5851	5872		2	4	6	8	10	12	14	16	19
4.9	-5892	5913	5933	5953	5974	5994	6014	6034	6054	6074	20	2	4	6	8	10	12	14	16	18
5.0	1.6094	6114	6134	6154	6174	6194	6214	6233	6253	6273		2	4	6	8	10	12	14	16	18
5.1	-6292	6312	6332	6351	6371	6390	6409	6429	6448	6467		2	4	6	8	10	12	14	16	18
5.2	-6487	6506	6525	6544	6563	6582	6601	6620	6639	6658	19	2	4	6	8	10	11	13	15	17
5.3	-6677	6696	6715	6734	6752	6771	6790	6808	6827	6845		2	4	6	7	9	11	13	15	17
5.4	-6864	6882	6901	6919	6938	6956	6974	6993	7011	7029		2	4	5	7	9	11	13	15	16

See Table inside front cover.

## SUBSIDIARY TABLE

x →	1	2	3	4	5	6	7	8	9	10
log <sub>e</sub> 10 <sup>x</sup>	2.3026	4.6052	6.9078	9.2103	11.5129	13.8155	16.1181	18.4207	20.7233	23.0259
log <sub>e</sub> 10 <sup>-x</sup>	3.6974	5.3948	7.0922	8.7897	10.4871	12.1845	13.8819	15.5793	17.2767	18.9741

For Explanation see footnote on opposite page.

x	0	1	2	3	4	5	6	7	8	9	Δ	ADD								
												1	2	3	4	5	6	7	8	9
												1	2	3	4	5	6	7	8	9
5.5	1.7047	7066	7084	7102	7120	7138	7156	7174	7192	7210	18	2	4	5	7	9	11	13	14	16
5.6	.7228	7246	7263	7281	7299	7317	7334	7352	7370	7387		2	4	5	7	9	11	12	14	16
5.7	.7405	7422	7440	7457	7475	7492	7509	7527	7544	7561		2	3	5	7	9	10	12	14	16
5.8	.7579	7596	7613	7630	7647	7664	7681	7699	7716	7733	17	2	3	5	7	9	10	12	14	15
5.9	.7750	7766	7783	7800	7817	7834	7851	7867	7884	7901		2	3	5	7	8	10	12	13	15
6.0	1.7918	7934	7951	7967	7984	8001	8017	8034	8050	8066		2	3	5	7	8	10	12	13	15
6.1	.8083	8099	8116	8132	8148	8165	8181	8197	8213	8229	16	2	3	5	6	8	10	11	13	15
6.2	.8245	8262	8278	8294	8310	8326	8342	8358	8374	8390		2	3	5	6	8	10	11	13	14
6.3	.8405	8421	8437	8453	8469	8485	8500	8516	8532	8547		2	3	5	6	8	9	11	13	14
6.4	.8563	8579	8594	8610	8625	8641	8656	8672	8687	8703		2	3	5	6	8	9	11	12	14
6.5	1.8718	8733	8749	8764	8779	8795	8810	8825	8840	8856	15	2	3	5	6	8	9	11	12	14
6.6	.8871	8886	8901	8916	8931	8946	8961	8976	8991	9006		2	3	4	6	8	9	10	12	14
6.7	.9021	9036	9051	9066	9081	9095	9110	9125	9140	9155		1	3	4	6	7	9	10	12	13
6.8	.9169	9184	9199	9213	9228	9242	9257	9272	9286	9301		1	3	4	6	7	9	10	12	13
6.9	.9315	9330	9344	9359	9373	9387	9402	9416	9430	9445		1	3	4	6	7	9	10	12	13
7.0	1.9459	9473	9488	9502	9516	9530	9544	9559	9573	9587	14	1	3	4	6	7	9	10	11	13
7.1	.9601	9615	9629	9643	9657	9671	9685	9699	9713	9727		1	3	4	6	7	8	10	11	13
7.2	.9741	9755	9769	9782	9796	9810	9824	9838	9851	9865		1	3	4	6	7	8	10	11	12
7.3	1.9879	9892	9906	9920	9933	9947	9961	9974	1.9988	2.0001		1	3	4	5	7	8	10	11	12
7.4	2.0015	0028	0042	0055	0069	0082	0096	0109	0122	0136		1	3	4	5	7	8	9	11	12
7.5	2.0149	0162	0176	0189	0202	0215	0229	0242	0255	0268	13	1	3	4	5	7	8	9	11	12
7.6	.0281	0295	0308	0321	0334	0347	0360	0373	0386	0399		1	3	4	5	7	8	9	10	12
7.7	.0412	0425	0438	0451	0464	0477	0490	0503	0516	0528		1	3	4	5	6	8	9	10	12
7.8	.0541	0554	0567	0580	0592	0605	0618	0631	0643	0656		1	3	4	5	6	8	9	10	12
7.9	.0669	0681	0694	0707	0719	0732	0744	0757	0769	0782		1	3	4	5	6	8	9	10	11
8.0	2.0794	0807	0819	0832	0844	0857	0869	0882	0894	0906	12	1	2	4	5	6	7	9	10	11
8.1	.0919	0931	0943	0956	0968	0980	0992	1005	1017	1029		1	2	4	5	6	7	9	10	11
8.2	.1041	1054	1066	1078	1090	1102	1114	1126	1138	1150		1	2	4	5	6	7	9	10	11
8.3	.1163	1175	1187	1199	1211	1223	1235	1247	1258	1270		1	2	4	5	6	7	8	10	11
8.4	.1282	1294	1306	1318	1330	1342	1353	1365	1377	1389		1	2	4	5	6	7	8	10	11
8.5	2.1401	1412	1424	1436	1448	1459	1471	1483	1494	1506	11	1	2	4	5	6	7	8	9	11
8.6	.1518	1529	1541	1552	1564	1576	1587	1599	1610	1622		1	2	3	5	6	7	8	9	10
8.7	.1633	1645	1656	1668	1679	1691	1702	1713	1725	1736		1	2	3	5	6	7	8	9	10
8.8	.1748	1759	1770	1782	1793	1804	1815	1827	1838	1849		1	2	3	5	6	7	8	9	10
8.9	.1861	1872	1883	1894	1905	1917	1928	1939	1950	1961		1	2	3	4	6	7	8	9	10
9.0	2.1972	1983	1994	2006	2017	2028	2039	2050	2061	2072		1	2	3	4	6	7	8	9	10
9.1	.2083	2094	2105	2116	2127	2138	2148	2159	2170	2181		1	2	3	4	5	7	8	9	10
9.2	.2192	2203	2214	2225	2235	2246	2257	2268	2279	2289		1	2	3	4	5	6	8	9	10
9.3	.2300	2311	2322	2332	2343	2354	2364	2375	2386	2396		1	2	3	4	5	6	7	9	10
9.4	.2407	2418	2428	2439	2450	2460	2471	2481	2492	2502		1	2	3	4	5	6	7	8	10
9.5	2.2513	2523	2534	2544	2555	2565	2576	2586	2597	2607	10	1	2	3	4	5	6	7	8	9
9.6	.2618	2628	2638	2649	2659	2670	2680	2690	2701	2711		1	2	3	4	5	6	7	8	9
9.7	.2721	2732	2742	2752	2762	2773	2783	2793	2803	2814		1	2	3	4	5	6	7	8	9
9.8	.2824	2834	2844	2854	2865	2875	2885	2895	2905	2915		1	2	3	4	5	6	7	8	9
9.9	2.2925	2935	2946	2956	2966	2976	2986	2996	3006	3016		1	2	3	4	5	6	7	8	9

The natural logarithm of a number outside the tabulated range is found by factorising that number into a tabulated number and the appropriate power of 10. See subsidiary table opposite and examples below.

$$67.89 = 6.789 \times 10$$

$$\log_e 67.89 = 1.9153 + 2.3026 \\ = 4.2179$$

$$0.006789 = 6.789 \times 10^{-3}$$

$$\log_e 0.006789 = 1.9153 + \bar{7}.0922 \\ = \bar{5}.0075 \text{ or } -4.9925$$

$x$	$e^x$	$e^{-x}$	$\sinh x$	$\cosh x$	$\tanh x$	$\log \sinh x$	$\log \cosh x$	$\log \tanh x$
0.0	1	1	0	1	0	$-\infty$	0	$-\infty$
0.1	1.1052	0.9048	0.1002	1.0050	0.0997	1.0007	0.0022	2.9986
0.2	1.2214	.8187	.2013	.2021	.1974	.3039	.0086	1.2953
0.3	1.3499	.7408	.3045	.0453	.2913	.4836	.0193	.4644
0.4	1.4918	.6703	.4108	.0811	.3799	.6136	.0339	.5797
0.5	1.6487	0.6065	0.5211	1.1276	0.4621	1.7169	0.0522	1.6648
0.6	1.8221	.5488	.6367	.1855	.5370	.8039	.0739	.7300
0.7	2.0138	.4966	.7586	.2552	.6044	.8800	.0987	.7813
0.8	2.2255	.4493	0.8881	.3374	.6640	1.9485	.1263	.8222
0.9	2.4596	.4066	1.0265	.4331	.7163	0.0114	.1563	.8551
1.0	2.7183	0.3679	1.1752	1.5431	0.7616	0.0701	0.1884	1.8817
1.1	3.0042	.3329	.3356	.6685	.8005	.1257	.2223	.9034
1.2	3.3201	.3012	.5095	.8107	.8337	.1788	.2578	.9210
1.3	3.6693	.2725	.6984	1.9709	.8617	.2300	.2947	.9354
1.4	4.0552	.2466	1.9043	2.1509	.8854	.2797	.3326	.9471
1.5	4.4817	0.2231	2.1293	2.3524	0.9051	0.3282	0.3715	1.9567
1.6	4.9530	.2019	2.3756	2.5775	.9217	.3758	.4112	.9646
1.7	5.4739	.1827	2.6456	2.8283	.9354	.4225	.4515	.9710
1.8	6.0496	.1653	2.9422	3.1075	.9468	.4687	.4924	.9763
1.9	6.6859	.1496	3.2682	3.4177	.9562	.5143	.5337	.9806
2.0	7.3891	0.1353	3.6269	3.7622	0.9640	0.5595	0.5754	1.9841
2.1	8.1662	.1225	4.0219	4.1443	.9705	.6044	.6175	.9870
2.2	9.0250	.1108	4.4571	4.5679	.9757	.6491	.6597	.9893
2.3	9.9742	.1003	4.9370	5.0372	.9801	.6935	.7022	.9913
2.4	11.0232	.0907	5.4662	5.5569	.9837	.7377	.7448	.9929
2.5	12.1825	0.0821	6.0502	6.1323	0.9866	0.7818	0.7876	1.9941
2.6	13.4637	.0743	6.6947	6.7690	.9890	.8257	.8305	.9952
2.7	14.8797	.0672	7.4063	7.4735	.9910	.8696	.8735	.9961
2.8	16.4446	.0608	8.1919	8.2527	.9926	.9134	.9166	.9968
2.9	18.1741	.0550	9.0596	9.1146	.9940	0.9571	0.9597	.9974
3.0	20.0855	0.0498	10.018	10.068	0.9951	1.0008	1.0029	1.9978
3.1	22.1980	.0450	11.076	11.122	.9959	.0444	.0452	.9982
3.2	24.5325	.0408	12.246	12.287	.9967	.0880	.0894	.9986
3.3	27.1126	.0369	13.538	13.575	.9973	.1316	.1327	.9988
3.4	29.9641	.0334	14.965	14.999	.9978	.1751	.1761	.9990
3.5	33.1155	0.0302	16.543	16.573	0.9982	1.2186	1.2194	1.9992
3.6	36.5982	.0273	18.285	18.313	.9985	.2621	.2628	.9994
3.7	40.4473	.0247	20.211	20.236	.9988	.3056	.3061	.9995
3.8	44.7012	.0224	22.339	22.362	.9990	.3491	.3495	.9996
3.9	49.4024	.0202	24.691	24.711	.9992	.3925	.3929	.9996
4.0	54.5982	0.0183	27.290	27.308	0.9993	1.4360	1.4363	1.9997
4.1	60.3403	.0166	30.162	30.178	.9995	.4795	.4797	.9998
4.2	66.6863	.0150	33.336	33.351	.9996	.5229	.5231	.9998
4.3	73.6998	.0136	36.843	36.857	.9996	.5664	.5665	.9998
4.4	81.4509	.0123	40.719	40.732	.9997	.6098	.6099	.9999
4.5	90.0171	0.0111	45.003	45.014	0.9998	1.6532	1.6533	1.9999
4.6	99.4843	.0101	49.737	49.747	.9998	.6967	.6968	.9999
4.7	109.9472	.0091	54.969	54.978	.9998	.7401	.7402	.9999
4.8	121.5104	.0082	60.751	60.759	.9999	.7836	.7836	1.9999
4.9	134.2898	.0074	67.141	67.149	.9999	.8270	.8270	0.0000
5.0	148.4132	0.0067	74.203	74.210	0.9999	1.8704	1.8705	0.0000

Values of  $e^x$  may also be obtained by inverse use of the table of natural logarithms (see pp. 44-45).

Find  $e^x$  for  $x=1.234$

1.234 is  $\log_e 3.435$

$\therefore e^{1.234}=3.435$

Find  $e^x$  for  $x=4.567$

4.567-2.3026 (i.e.  $\log_e 10$ ) = 2.2644

2.2644 is  $\log_e 9.626$

$\therefore e^{4.567}=96.26$



Degrees to Radians						Radians to Degrees						Radians to Minutes					
°	'	°	'	°	'	°	'	°	'	°	'	°	'	°	'		
0	0-00000	30	0-52360	60	1-04720	00	0-0000	00-0	50	28-648	38-9	0000	0-0	0050	17-2		
1	-01745	31	-54105	61	-06465	01	0-573	34-4	51	29-221	13-3	0001	0-3	0051	17-5		
2	-03491	32	-55581	62	-08210	02	1-146	08-8	52	29-794	47-6	02	0-7	52	17-9		
3	-05236	33	-57596	63	-09956	03	1-719	43-1	53	30-367	22-0	03	1-0	53	18-2		
4	-06981	34	-59341	64	-11701	04	2-292	17-5	54	30-940	56-4	04	1-4	54	18-6		
5	0-08727	35	0-61087	65	1-13446	05	2-865	51-9	55	31-513	30-8	0005	1-7	0055	18-9		
6	-10472	36	-62832	66	-15192	06	3-438	26-3	56	32-086	05-1	06	2-1	56	19-3		
7	-12217	37	-64577	67	-16937	07	4-011	00-6	57	32-659	39-5	07	2-4	57	19-6		
8	-13963	38	-66323	68	-18682	08	4-584	35-0	58	33-232	13-9	08	2-8	58	19-9		
9	-15708	39	-68068	69	-20428	09	5-157	09-4	59	33-805	48-3	09	3-1	59	20-3		
10	0-17453	40	0-69813	70	1-22173	10	5-730	43-8	60	34-377	22-6	0010	3-4	0060	20-6		
11	-19199	41	-71558	71	-23918	11	6-303	18-2	61	34-950	57-0	11	3-8	61	21-0		
12	-20944	42	-73304	72	-25664	12	6-875	52-5	62	35-523	31-4	12	4-1	62	21-3		
13	-22689	43	-75049	73	-27409	13	7-448	26-9	63	36-096	05-8	13	4-5	63	21-7		
14	-24435	44	-76794	74	-29154	14	8-021	01-3	64	36-669	40-2	14	4-8	64	22-0		
15	0-26180	45	0-78540	75	1-30900	15	8-594	35-7	65	37-242	14-5	0015	5-2	0065	22-3		
16	-27925	46	-80285	76	-32645	16	9-167	10-0	66	37-815	48-9	16	5-5	66	22-7		
17	-29671	47	-82030	77	-34390	17	9-740	44-4	67	38-388	23-3	17	5-8	67	23-0		
18	-31416	48	-83776	78	-36136	18	10-313	18-8	68	38-961	57-7	18	6-2	68	23-4		
19	-33161	49	-85521	79	-37881	19	10-886	53-2	69	39-534	32-0	19	6-5	69	23-7		
20	0-34907	50	0-87266	80	1-39626	20	11-459	27-5	70	40-107	06-4	0020	6-9	0070	24-1		
21	-36652	51	-89012	81	-41372	21	12-032	01-9	71	40-680	40-8	21	7-2	71	24-4		
22	-38397	52	-90757	82	-43117	22	12-605	36-3	72	41-253	15-2	22	7-6	72	24-8		
23	-40143	53	-92502	83	-44862	23	13-178	10-7	73	41-826	49-6	23	7-9	73	25-1		
24	-41888	54	-94248	84	-46608	24	13-751	45-1	74	42-399	23-9	24	8-3	74	25-4		
25	0-43633	55	0-95993	85	1-48353	25	14-324	19-4	75	42-972	58-3	0025	8-6	0075	25-8		
26	-45379	56	-97738	86	-50098	26	14-897	53-8	76	43-545	32-7	26	8-9	76	26-1		
27	-47124	57	-99484	87	-51844	27	15-470	28-2	77	44-118	07-1	27	9-3	77	26-5		
28	-48869	58	-1-01229	88	-53589	28	16-043	02-6	78	44-691	41-4	28	9-6	78	26-8		
29	-50615	59	-02974	89	-55334	29	16-616	36-9	79	45-264	15-8	29	10-0	79	27-2		
30	0-52360	60	1-04720	90	1-57080	30	17-189	11-3	80	45-837	50-2	0030	10-3	0080	27-5		
						31	17-762	45-7	81	46-410	24-6	31	10-7	81	27-8		
						32	18-335	20-1	82	46-983	59-0	32	11-0	82	28-2		
						33	18-908	54-5	83	47-555	33-3	33	11-3	83	28-5		
						34	19-481	28-8	84	48-128	07-7	34	11-7	84	28-9		
						35	20-054	03-2	85	48-701	42-1	0035	12-0	0085	29-2		
						36	20-626	37-6	86	49-274	16-5	36	12-4	86	29-6		
						37	21-199	12-0	87	49-847	50-8	37	12-7	87	29-9		
						38	21-772	46-3	88	50-420	25-2	38	13-1	88	30-3		
						39	22-345	20-7	89	50-993	59-6	39	13-4	89	30-6		
						40	22-918	55-1	90	51-566	34-0	0040	13-8	0090	30-9		
						41	23-491	29-5	91	52-139	08-3	41	14-1	91	31-3		
						42	24-064	03-9	92	52-712	42-7	42	14-4	92	31-6		
						43	24-637	38-2	93	53-285	17-1	43	14-8	93	32-0		
						44	25-210	12-6	94	53-858	51-5	44	15-1	94	32-3		
						45	25-783	47-0	95	54-431	25-9	0045	15-5	0095	32-7		
						46	26-356	21-4	96	55-004	00-2	46	15-8	96	33-0		
						47	26-929	55-7	97	55-577	34-6	47	16-2	97	33-3		
						48	27-502	30-1	98	56-150	09-0	48	16-5	98	33-7		
						49	28-075	04-5	99	56-723	43-4	49	16-8	99	34-0		
						50	28-648	38-9	100	57-296	17-7	0050	17-2	0100	34-4		
Minutes to Radians																	
°	'	°	'	°	'												
0	0-00000	20	0-00582	40	0-01164												
1	-00029	21	-00611	41	-01193												
2	-00058	22	-00640	42	-01222												
3	-00087	23	-00669	43	-01251												
4	-00116	24	-00698	44	-01280												
5	0-00145	25	0-00727	45	0-01309												
6	-00175	26	-00756	46	-01338												
7	-00204	27	-00785	47	-01367												
8	-00233	28	-00814	48	-01396												
9	-00262	29	-00844	49	-01425												
10	0-00291	30	0-00873	50	0-01454												
11	-00320	31	-00902	51	-01484												
12	-00349	32	-00931	52	-01513												
13	-00378	33	-00960	53	-01542												
14	-00407	34	-00989	54	-01571												
15	0-00436	35	0-01018	55	0-01600												
16	-00465	36	-01047	56	-01629												
17	-00495	37	-01076	57	-01658												
18	-00524	38	-01105	58	-01687												
19	-00553	39	-01134	59	-01716												
20	0-00582	40	0-01164	60	0-01745												
						°	'	°	'	°	'						
						1	57-296	or	57	17-7	6	343-775	or	343	46-5		
						2	114-592		114	35-5	7	401-070		401	04-2		
						3	171-887		171	53-2	8	458-366		458	22-0		
						4	229-183		229	11-0	9	515-662		515	39-7		
						5	286-479		286	28-7	10	572-958		572	57-5		

## WEIGHTS AND MEASURES

## Length

1 cm	= 0.3937 in
1 m	= 1.093 yd
1 km	= 0.6214 ml
1 in	= 2.54 cm (Exact value)
1 yd	= 0.9144 m ( " " )
1 ml	= 1.609 km

## Area

1 cm <sup>2</sup>	= 0.1550 in <sup>2</sup>
1 m <sup>2</sup>	= 1.196 yd <sup>2</sup>
1 km <sup>2</sup>	= 0.3861 ml <sup>2</sup>
1 hectare	= 2.471 acre
1 in <sup>2</sup>	= 6.452 cm <sup>2</sup>
1 yd <sup>2</sup>	= 0.8361 m <sup>2</sup>
1 ml <sup>2</sup>	= 2.590 km <sup>2</sup>
1 acre	= 0.4047 hectare

## Volume

1 cm <sup>3</sup>	= 0.06102 in <sup>3</sup>
1 m <sup>3</sup>	= 1.308 yd <sup>3</sup>
1 litre	= 1.760 pt (UK)
1 in <sup>3</sup>	= 16.39 cm <sup>3</sup>
1 yd <sup>3</sup>	= 0.7646 m <sup>3</sup>
1 pt (UK)	= 0.5682 litre

## Mass

1 kg	= 2.205 lb
	= 0.9842 × 10 <sup>-3</sup> ton
1 g	= 0.0352 oz
1 lb	= 0.4536 kg
1 ton	= 1016 kg
1 oz	= 28.35 g

## Force

1 kgf	= 2.205 lbf
	= 70.93 pdl
1 lbf	= 0.4536 kgf
1 pdl	= 0.04110 kgf
(1 kgf	= 9.807 N
1 lbf	= 32.17 pdl)

## Work

1 J	= 0.7376 ft lbf
	= 23.73 ft pdl
1 ft lbf	= 1.356 J
1 ft pdl	= 0.0421 J

## Technical Units of Mass

1 Metric Tech. Unit Mass	= 9.807 kg
1 British Tech. Unit Mass	= 32.17 lb

## Other Useful Values

1 micron (μ) <sub>0</sub>	= 10 <sup>-6</sup> m
1 Ångström (Å)	= 10 <sup>-10</sup> m
1 microinch (μin)	= 10 <sup>-6</sup> in
1 mil (milli-inch)	= 10 <sup>-3</sup> in
1 chain (Gunter's)	= 22 yd
1 chain (engineer's)	= 100 ft
1 UK Nautical mile	= 6080 ft
1 knot	= 6080 ft hr
1 International Naut. mile	= 1852 m
1 light year	= 5.880 × 10 <sup>12</sup> ml
1 parsec	= 3.263 light years
1 torr (pressure)	= 1/760 atmosphere

## UNITS, CONSTANTS, STANDARD VALUES AND EQUIVALENTS (to 4 figs)

Length. The metre = 1 650 763.73 wavelengths of the Kr 86 orange radiation (2p<sub>10</sub> - 5d<sub>5</sub>).

Mass. The kilogramme is the mass of the International Prototype kilogramme (a Pt-Ir cylinder) at the Institute of Weights and Measures, Paris.

Time. The mean solar second.

Force. 1 Newton (N) will accelerate 1 kgm at 1 m s<sup>-2</sup>.  
Work. 1 Joule (J) = 1 Nm. Power. 1 W = 1 J s<sup>-1</sup>.  
C.G.S. units. Force 1 dyn = 10<sup>-5</sup> N; Work, 1 erg = 10<sup>-7</sup> J.  
Velocity of Light = 2.998 × 10<sup>8</sup> m s<sup>-1</sup> = 186300 ml s<sup>-1</sup>.  
Permeability of Vacuum (m.k.s.). μ<sub>0</sub> = 4π × 10<sup>-7</sup> Hm<sup>-1</sup>.  
Permittivity of Vacuum (m.k.s.). ε<sub>0</sub> = 8.854 × 10<sup>-12</sup> Fm<sup>-1</sup>.  
Gravitational constant. G = 6.668 × 10<sup>-11</sup> Nm<sup>2</sup> Kg<sup>-2</sup>.  
Standard acceleration of gravity. g = 9.807 m s<sup>-2</sup> = 32.17 ft s<sup>-2</sup>.

Standard atmosphere. 1 atm = 10.13250 Nm<sup>-2</sup>.

Solar year = 365 d 5 hr 48 min 45.5 sec.

Mean solar second = 1/86400 mean solar day.

International Temperature Scale of 1948. (All at 1 std atm.)	b.p. Oxygen = -182.97 °C. m.p. Ice = 0 °C. b.p. Water = 100 °C. b.p. Sulphur = 444.6 °C. f.p. Silver = 960.8 °C. f.p. Gold = 1063 °C.
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m.p. Ice on Kelvin scale 0 °C = 273.2 °K.

Triple pt. of water 0.0100 °C.

International Table calorie. 1 cal<sub>IT</sub> = 4.187 J.

15 °C calorie. 1 cal<sub>15</sub> = 4.186 J.

British thermal unit. 1 Btu = 778.2 ft lbf = 1055 J.

Therm. 1 therm = 10<sup>6</sup> Btu.

Horsepower. 1 hp = 550 ft lbf s<sup>-1</sup> = 745.7 W.

Electron volt. 1 ev = 1.602 × 10<sup>-19</sup> J.

e.m.f. of Normal Weston Cadmium cell. E<sub>20</sub> °C = 1.019 v.  
Standard transmitted radio frequency. Droitwich (carrier) 200 kc/s.

Standard transmitted audio frequency. B.B.C. 3rd Programme 400 c/s.

Standard concert pitch. A = 440 c/s.

Scientific pitch. C = 256 c/s.

Standard volume of perfect gas. V<sub>0</sub> = 22.42 m<sup>3</sup> atm kmole<sup>-1</sup>.

Avogadro's constant. N = 6.0249 × 10<sup>26</sup> kmole<sup>-1</sup>.

Loschmidt's constant. L<sub>0</sub> = 2.687 × 10<sup>25</sup> m<sup>-3</sup> atm.

Gas constant. R<sub>0</sub> = 8317 J(kmole °K)<sup>-1</sup>.

Boltzmann's constant. k = 1.380 × 10<sup>-23</sup> J °K<sup>-1</sup>.

Faraday's constant. F = 9.652 × 10<sup>7</sup> C kmole<sup>-1</sup>.

Electron charge. e = 1.602 × 10<sup>-19</sup> C.

Electron rest mass. m = 9.108 × 10<sup>-31</sup> kg.

Electron charge/mass ratio. e/m = 1.759 × 10<sup>11</sup> C kg<sup>-1</sup>.

Proton rest mass. m<sub>p</sub> = 1.672 × 10<sup>-27</sup> kg.

Neutron rest mass. m<sub>n</sub> = 1.674 × 10<sup>-27</sup> kg.

Proton mass/electron mass. m/m<sub>p</sub> = 1836.

Planck's constant. h = 6.625 × 10<sup>-34</sup> Js.

Wien's law. λ<sub>max</sub> T = 28.98 × 10<sup>-4</sup> m °K.

Stefan-Boltzmann constant. σ = 0.5669 × 10<sup>-7</sup> J m<sup>-2</sup> °K<sup>-4</sup> s<sup>-1</sup>.

Mass of Sun = 1.987 × 10<sup>30</sup> kg.

Mass of Earth = 5.975 × 10<sup>24</sup> kg.

Mean distance, earth to sun = 1.495 × 10<sup>8</sup> km

= 92.89 × 10<sup>6</sup> ml.

Earth's equatorial radius = 6378 km = 3963 ml.

Earth's polar radius = 6357 km = 3950 ml.

# PROPORTIONAL PARTS FOR MINUTES

# MULTIPLES OF $\pi$

$\Delta$	1	2	3	4	5	$\Delta$	1	2	3	4	5
1	0	0	1	1	1	51	9	17	26	34	43
2	0	1	1	1	2	52	9	17	26	35	43
3	1	1	2	2	3	53	9	18	27	35	44
4	1	1	2	3	3	54	9	18	27	36	45
5	1	2	3	3	4	55	9	18	28	37	46
6	1	2	3	4	5	56	9	19	28	37	47
7	1	2	4	5	6	57	10	19	29	38	48
8	1	3	4	5	7	58	10	19	29	39	48
9	2	3	5	6	8	59	10	20	30	39	49
10	2	3	5	7	8	60	10	20	30	40	50
11	2	4	6	7	9	61	10	20	31	41	51
12	2	4	6	8	10	62	10	21	31	41	52
13	2	4	7	9	11	63	11	21	32	42	53
14	2	5	7	9	12	64	11	21	32	43	53
15	3	5	8	10	13	65	11	22	33	43	54
16	3	5	8	11	13	66	11	22	33	44	55
17	3	6	9	11	14	67	11	22	34	45	56
18	3	6	9	12	15	68	11	23	34	45	57
19	3	6	10	13	16	69	12	23	35	46	58
20	3	7	10	13	17	70	12	23	35	47	58
21	4	7	11	14	18	71	12	24	36	47	59
22	4	7	11	15	18	72	12	24	36	48	60
23	4	8	12	15	19	73	12	24	37	49	61
24	4	8	12	16	20	74	12	25	37	49	62
25	4	8	13	17	21	75	13	25	38	50	63
26	4	9	13	17	22	76	13	25	38	51	63
27	5	9	14	18	23	77	13	26	39	51	64
28	5	9	14	19	23	78	13	26	39	52	65
29	5	10	15	19	24	79	13	26	40	53	66
30	5	10	15	20	25	80	13	27	40	53	67
31	5	10	16	21	26	81	14	27	41	54	68
32	5	11	16	21	27	82	14	27	41	55	68
33	6	11	17	22	28	83	14	28	42	55	69
34	6	11	17	23	28	84	14	28	42	56	70
35	6	12	18	23	29	85	14	28	43	57	71
36	6	12	18	24	30	86	14	29	43	57	72
37	6	12	19	25	31	87	15	29	44	58	73
38	6	13	19	25	32	88	15	29	44	59	73
39	7	13	20	26	33	89	15	30	45	59	74
40	7	13	20	27	33	90	15	30	45	60	75
41	7	14	21	27	34	91	15	30	46	61	76
42	7	14	21	28	35	92	15	31	46	61	77
43	7	14	22	29	36	93	16	31	47	62	78
44	7	15	22	29	37	94	16	31	47	63	78
45	8	15	23	30	38	95	16	32	48	63	79
46	8	15	23	31	38	96	16	32	48	64	80
47	8	16	24	31	39	97	16	32	49	65	81
48	8	16	24	32	40	98	16	33	49	65	82
49	8	16	25	33	41	99	17	33	50	66	83
50	8	17	25	33	42	100	17	33	50	67	83

$X$	$\pi \cdot X$	$X$	$\pi \cdot X$
1	3.142	51	160.221
2	6.283	52	163.363
3	9.425	53	166.504
4	12.566	54	169.646
5	15.708	55	172.788
6	18.850	56	175.929
7	21.991	57	179.071
8	25.133	58	182.212
9	28.274	59	185.354
10	31.416	60	188.496
11	34.558	61	191.637
12	37.699	62	194.779
13	40.841	63	197.920
14	43.982	64	201.062
15	47.124	65	204.204
16	50.265	66	207.345
17	53.407	67	210.487
18	56.549	68	213.628
19	59.690	69	216.770
20	62.832	70	219.911
21	65.973	71	223.053
22	69.115	72	226.195
23	72.257	73	229.336
24	75.398	74	232.478
25	78.540	75	235.619
26	81.681	76	238.761
27	84.823	77	241.903
28	87.965	78	245.044
29	91.106	79	248.186
30	94.248	80	251.327
31	97.389	81	254.469
32	100.531	82	257.611
33	103.673	83	260.752
34	106.814	84	263.894
35	109.956	85	267.035
36	113.097	86	270.177
37	116.239	87	273.319
38	119.381	88	276.460
39	122.522	89	279.602
40	125.664	90	282.743
41	128.805	91	285.885
42	131.947	92	289.027
43	135.088	93	292.168
44	138.230	94	295.310
45	141.372	95	298.451
46	144.513	96	301.593
47	147.655	97	304.734
48	150.796	98	307.876
49	153.938	99	311.018
50	157.080	100	314.159

## 6-FIGURE LOGARITHMS

No.	Log	No.	Log	No.	Log	No.	Log	No.	Log
1.0000	-000 000	1.0150	-006 466	1.0300	-012 837	1.0450	-019 116	1.0600	-025 306
1.0025	-001 084	1.0175	-007 534	1.0325	-013 890	1.0475	-020 154	1.0625	-026 329
1.0050	-002 166	1.0200	-008 600	1.0350	-014 940	1.0500	-021 189	1.0650	-027 350
1.0075	-003 245	1.0225	-009 663	1.0375	-015 988	1.0525	-022 222	1.0675	-028 368
1.0100	-004 321	1.0250	-010 724	1.0400	-017 033	1.0550	-023 252	1.0700	-029 384
1.0125	-005 395	1.0275	-011 782	1.0425	-018 076	1.0575	-024 280	1.0725	-030 397

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